# The PHOTOFACT® Servicer

SET 536 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ JUNE 1961

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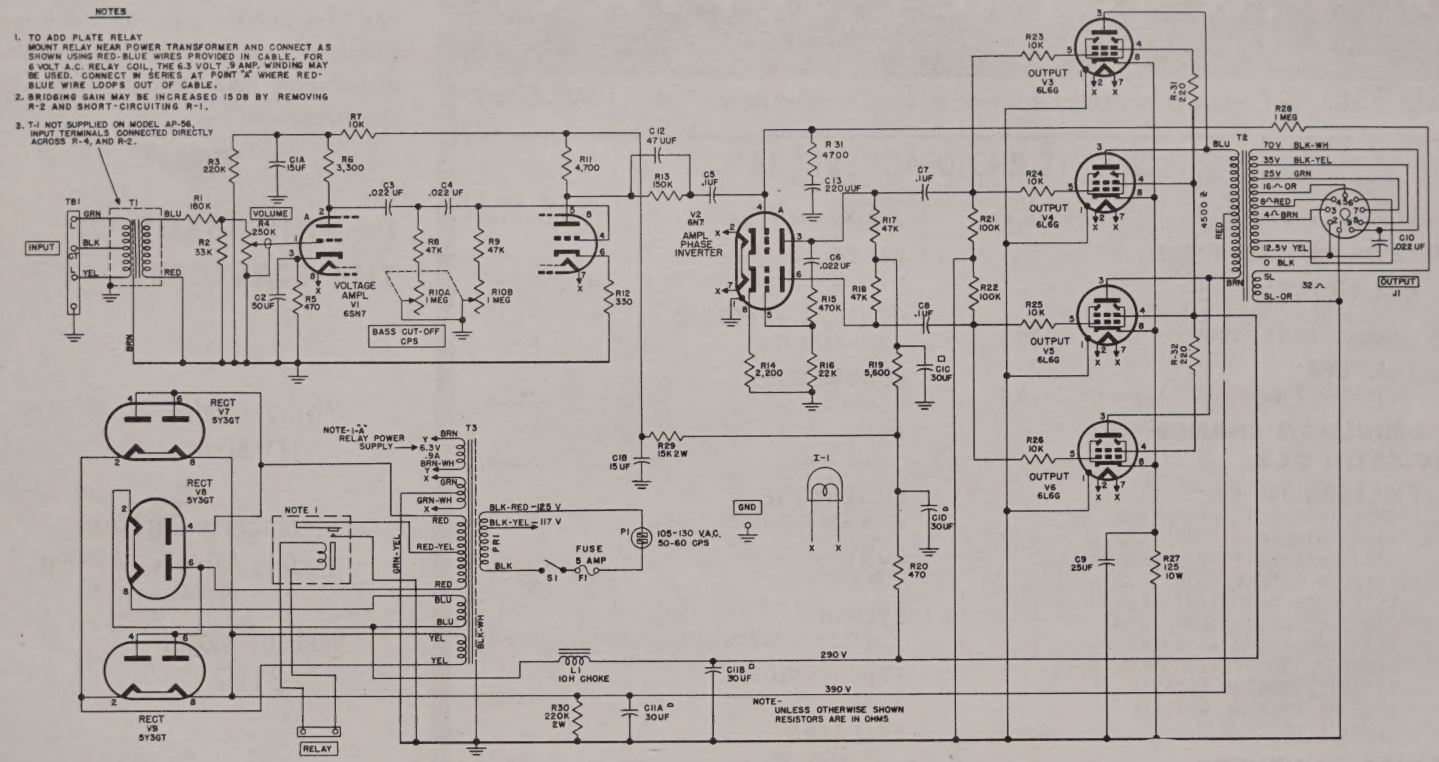
This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

## IN THIS ISSUE OF THE SERVICER:

Philco Model
J1930R

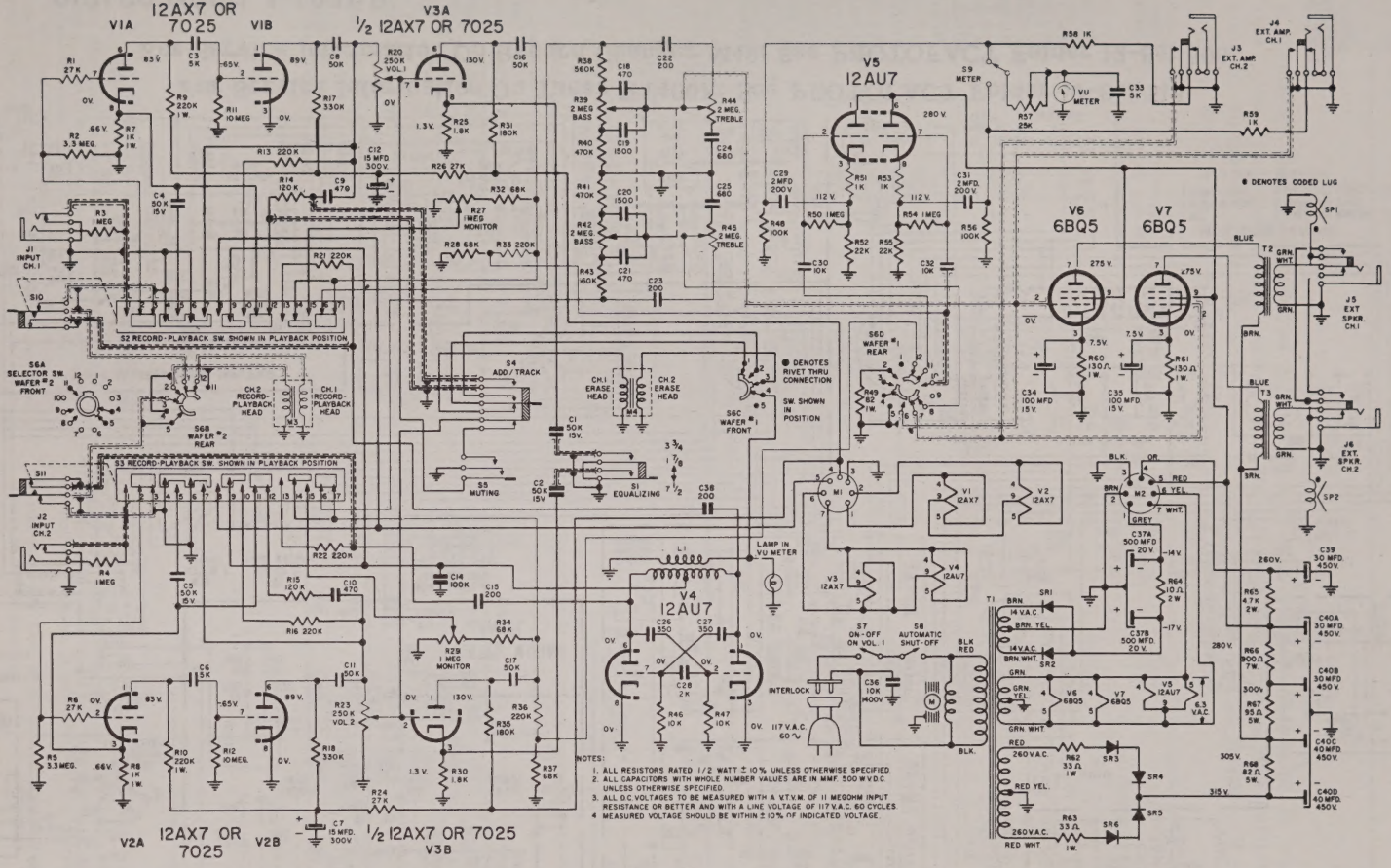
Stromberg-Carlson
Models AP-55, AP-56

Webcor Model
2107


NOTES
1. TO ADD PLATE RELAY MOUNT RELAY NEAR POWER TRANSFORMER AND CONNECT AS SHOWN USING RED-BLUE WIRES PROVIDED IN CABLE. FOR 6 VOLT A.C. RELAY COIL, THE 6.3 VOLT 9 AMP. WINDING MAY BE USED. CONNECT IN SERIES AT POINT "X" WHERE RED-BLUE WIRE LOOPS OUT OF CABLE.
2. BRIDGING GAIN MAY BE INCREASED 15 DB BY REMOVING R-2 AND SHORT-CIRCUITING R-1.
3. T-1 NOT SUPPLIED ON MODEL AP-56, INPUT TERMINALS CONNECTED DIRECTLY ACROSS R-4, AND R-2.
INPUT
VOLUME X4 250K
VOLTAGE AMPL V1 6SN7
BASS CUT-OFF CPS
AMPL PHASE INVERTER V2 6N7
OUTPUT V3 6L6G
OUTPUT V4 6L6G
OUTPUT V5 6L6G
OUTPUT V6 6L6G
RECT V7 5Y3GT
RECT V8 5Y3GT
RECT V9 5Y3GT
NOTE 1
NOTE-1-A RELAY POWER SUPPLY
RELAY
FUSE 5 AMP
105-130 VAC. 50-60 CPS
10H CHOKE
290 V
390 V
GND
NOTE- UNLESS OTHERWISE SHOWN RESISTORS ARE IN OHMS
4500 Ω
OUTPUT J1

# STROMBERG-CARLSON MODELS AP-55, AP-56

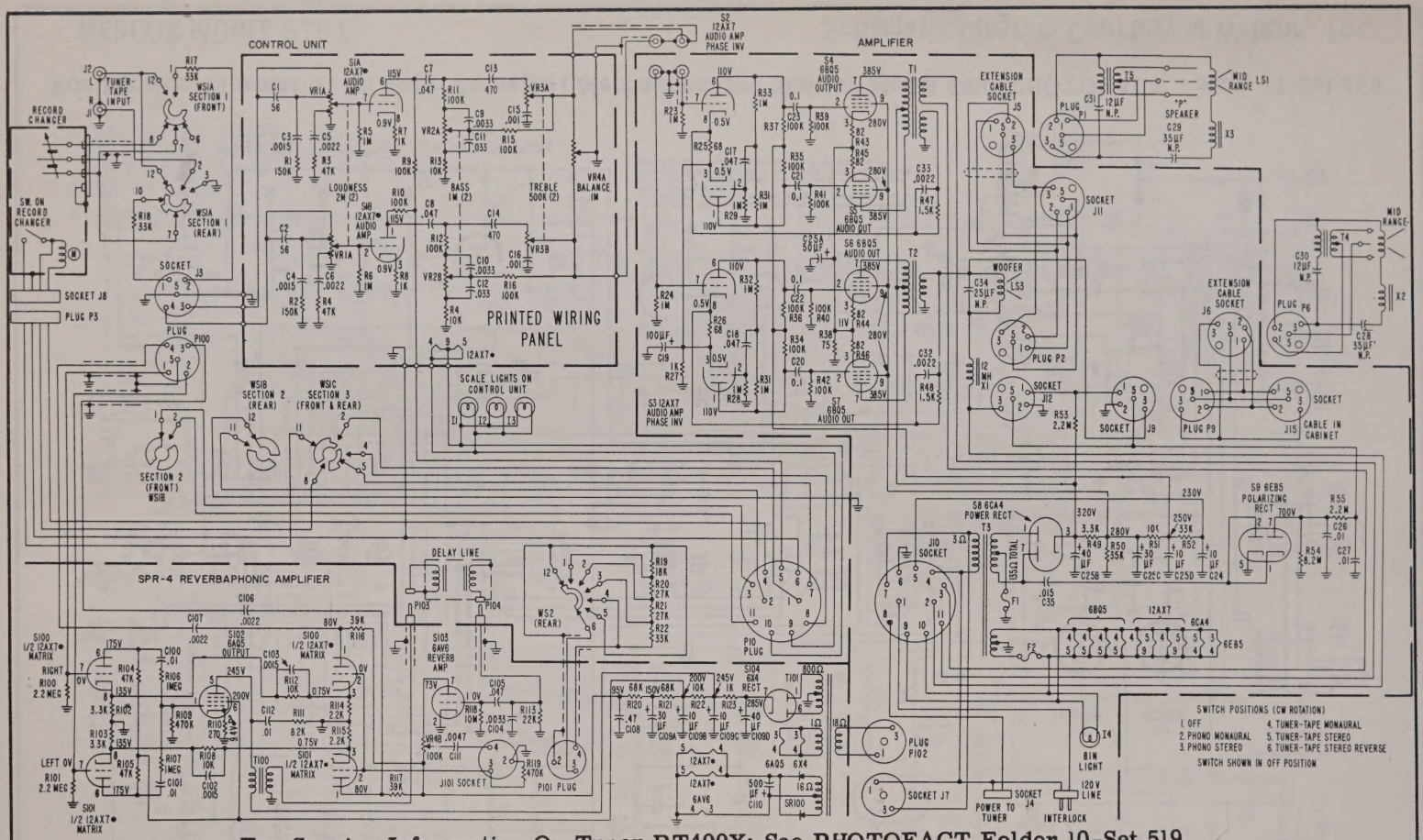
Schematic Diagram Courtesy of Stromberg-Carlson Comapny


V1A 12AX7 OR 7025
V1B
V3A ½ 12AX7 OR 7025
V5 12AU7
V6 6BQ5
V7 6BQ5
V4 12AU7
V2A 12AX7 OR 7025
V2B
½ 12AX7 OR 7025 V3B
S2 RECORD-PLAYBACK SW. SHOWN IN PLAYBACK POSITION
S3 RECORD-PLAYBACK SW. SHOWN IN PLAYBACK POSITION
S4 ADD / TRACK
S5 MUTING
S1 EQUALIZING
S6A SELECTOR SW. WAFER #2 FRONT
S6B WAFER #2 REAR
S6C WAFER #1 FRONT
S6D WAFER #1 REAR
S7 ON-OFF ON VOL. I
S8 AUTOMATIC SHUT-OFF
S9 METER
S10
S11
J1 INPUT CH.1
J2 INPUT CH.2
J3 EXT. AMP. CH.2
J4 EXT. AMP. CH.1
J5 EXT SPKR. CH.1
J6 EXT. SPKR. CH.2
CH.1 ERASE HEAD
CH.2 ERASE HEAD
CH.2 RECORD-PLAYBACK HEAD
CH.1 RECORD-PLAYBACK HEAD
VU METER
LAMP IN VU METER
INTERLOCK
● DENOTES RIVET THRU CONNECTION
SW. SHOWN IN POSITION
● DENOTES CODED LUG
NOTES:
1. ALL RESISTORS RATED 1/2 WATT ± 10% UNLESS OTHERWISE SPECIFIED
2. ALL CAPACITORS WITH WHOLE NUMBER VALUES ARE IN MMF. 500 W.V.D.C. UNLESS OTHERWISE SPECIFIED
3. ALL D.C. VOLTAGES TO BE MEASURED WITH A V.T.V.M. OF 11 MEGOHM INPUT RESISTANCE OR BETTER AND WITH A LINE VOLTAGE OF 117 V.A.C. 60 CYCLES.
4. MEASURED VOLTAGE SHOULD BE WITHIN ± 10% OF INDICATED VOLTAGE.

**For Service Information On Tape Transport Mechanism-See Similar Model 2810-PHOTOFACT Folder 17-Set 458**

WEBCOR MODEL 2107

Schematic Diagram Courtesy of Webcor, Inc.




**For Service Information On Tuner RT400X: See PHOTOFACT Folder 10-Set 519**

**For Service Information On Record Changer M49: See PHOTOFACT Folder 12-Set 506**

## PHILCO MODEL J-1930 R

Schematic Diagram Courtesy of Philco Corporation

PHOTOFACT® Folder



## INDEX

A cumulative index is included as a part of this Folder. Upon finding that a new tube is not listed on the roll chart of a tester covered in this service, refer to the latest Tube Tester Data Index to determine in which PHOTOFACT Set the data was published. If listed, reference to that Folder will provide the necessary data.

| TUBE TYPES | JACKSON 598, 648, and 658 See PHOTOFACT Set No. | TUBE TYPES | JACKSON 598, 648, and 658 See PHOTOFACT Set No. | TUBE TYPES | JACKSON 598, 648, and 658 See PHOTOFACT Set No. |
|---|---|---|---|---|---|
| 2EV5 | 512 | 6EQ7 | 516 | 8FQ7 | 536 |
| 2FQ5 | 524 | 6ES8 | 524† | 10EM7 | 532 |
| 2FY5 | 512 | 6FA7 | 524 | 10HF8 | 536 |
| 3ES5 | 524 | 6FG7 | 516 | 12BZ6 | 524† |
| 3EV5 | 512 | 6FQ5 | 524 | 12DY8 | 516 |
| 4AV6 | 532 | 6FQ7 | 532 | 12GW6 | 528 |
| 4ES8 | 524 | 6FS5 | 520 | 13EM7 | 512 |
| 4GS8 | 516 | 6FW5 | 520 | 17DM4 | 532 |
| 5DJ4 | 528 | 6GW6 | 528 | 17GW6 | 528 |
| 5EW6 | 536 | 6GW8 | 528 | 19EZ8 | 524 |
| 6AJ8 | 524† | 6GX6 | 532 | 19HV8 | 536 |
| 6AL3 | 524 | 6GY6 | 536 | 34GD5 | 508 |
| 6CB5 | 524† | 6HF8 | 532 | 50FK5 | 536 |
| 6CB6 | 524† | 6HG8 | 528 | VR75 | 524† |
| 6CD6 | 524† | 6HJ8 | 516 | 7695 | 512 |
| 6CD7 | 512 | 6HS8 | 524 | 7701 | 520 |
| 6CQ4 | 528 | 8ET7 | 516 | 7716 | 520 |

† See Correction Notice

### JACKSON MODEL 598

Set 536

SUPPLEMENTS LATEST ROLL CHART 598-3

| Tube Type | A. | B. | Fil. C. | Cont. | D. | E. | F. | G. |
|---|---|---|---|---|---|---|---|---|
| 5EW6 | 5.6 | 3Z | | 4 | 5 | | 6 | 60 |
| 6GY6 | 6.3 | 3Y | | 4 | 5 | 1Z | 6 | 66 |
| 8FQ7 | 8.4 | 4 | | 5 | 6 | 7 | | 34 |
| | " | " | | | 1 | 2 | | " |
| 10HF8 | 10.5 | 4Y | | 5 | 9 | 7Z | 8 | 63 |
| | " | " | | | 3 | 2 | | 64 |
| 19HV8 | 19. | 4Y | | 5 | 6 | 9Z | 7 | 71 |
| | " | " | | | 2 | 1Z | | 76 |
| 50FK5 | 50. | 3Z | 5 | 4 | 7 | 2 | 6 | 38 |

### JACKSON MODEL 648

Set 536

SUPPLEMENTS LATEST ROLL CHART 648-24

| Tube Type | Fil. | D. | E. | Plate Test |
|---|---|---|---|---|
| 5EW6 | 5.6 | AC1234 | 567* | 45 XZ |
| 6GY6 | 6.3 | A2347 | AC156 | 54 YZ |
| 8FQ7 | 8.4 | A127 | A89 | 20 WY |
| | " | A123 | A45 | " " |
| 10HF8 | 10.5 | A128 | 679 | 55 Z |
| | " | A124 | A35 | 48 YZ |
| 19HV8 | 19. | A127 | AC689 | 57 XZ |
| | " | 123 | AC45 | 19 XZ |
| 50FK5 | 50. | C123 | 467 | 60 VW |

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# JACKSON
# MODEL 658



SUPPLEMENTS LATEST ROLL CHART 658-4

| Tube Type | Sec. | Heater | Circuit H-K | Circuit P-G | Plate | Grid Test | Heater Current |
|---|---|---|---|---|---|---|---|
| 5EW6 | P | 5.0P | 1247 | ac356 | 60S | 10WY• | A13.6D Z450 |
| 6GY6 | P | 6.4K | 1247 | ac356 | 18R | 10XY • | A13.6H Z450 |
| 8FQ7 | T | 8.5L | 127 | a89 | 16Q | 30WY• | |
| | T | " | 123 | a45 | " | " • | A13.6G Z600 |
| 10HF8 | P | 10.6M | 128 | 679 | 21R | 20WY• | |
| | T | " | 124 | a35 | 15R | 7XY• | A18.6H Z450 |
| 19HV8 | P | 18.6P | 127 | ac689 | 43R | 15WY• | |
| | T | " | 123 | ac45 | 64S | 5XY• | |
| 50FK5 | P | 50.K | 123 | 467 | 17R | 20WY• | |

PHOTOFACT® Folder with CIRCUITRACE®

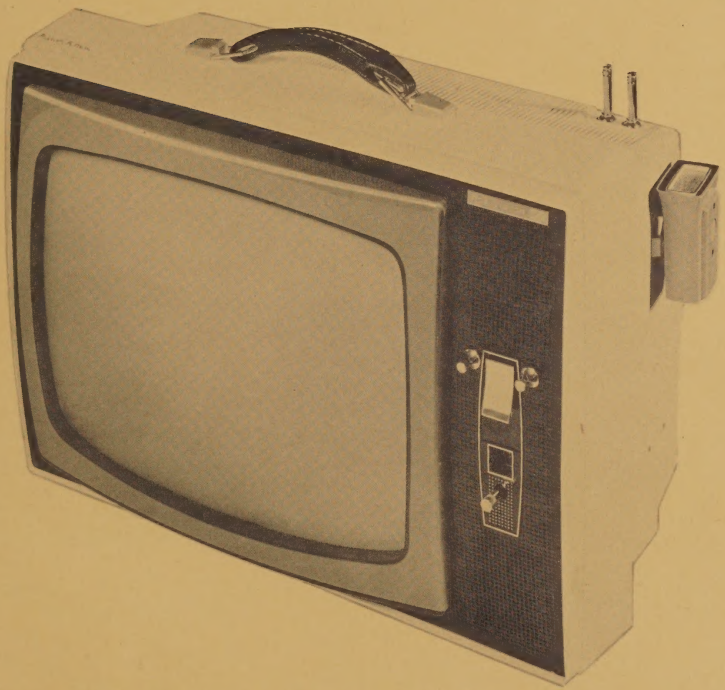
# RCA VICTOR CHASSIS KCS133A, B, C, E, F, H, K, KRS24C, KRT1B, KT2A

## IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

RCA VICTOR CHASSIS KCS133A, B, C, E, F, H, K, KRS24C, KRT1B, KT2A



MODEL 191AER204

RCA VICTOR CHASSIS KCS133A, B, C, E, F, H, K, KRS24C, KRT1B, KT2A

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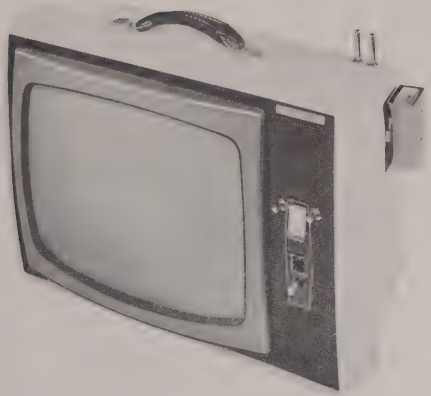
SET 536 FOLDER 1



MODEL 191AER204

| TRADE NAME | RCA Victor Models | TV Chassis | Remote Control | VHF Tuner | UHF Tuner |
|---|---|---|---|---|---|
| | 191A192, 191A194 | KCS133A | | KRK96N | |
| | 191A192U, 191A194U | KCS133B | | KRK97N | KRK66AH |
| | 191AE202, 191AE205, 191AE208, 191AE209 | KCS133F | | KRK98E | |
| | 191AE202U, 191AE205U, 191AE208U, 191AE209U | KCS133H | | KRK99E | KRK66AH |
| | 191S194 | KCS133K | | KRK96N | |
| | 191AER204 | KCS133C | KRS24C, KRT1B | KRK102 | |
| | H191AWR204 | KCS133E | KRT2A | KRK102 | |

| | |
|---|---|
| MANUFACTURER | Radio Corporation of America, RCA Victor Television Div., Camden 8, N. J. |
| TYPE SET | Television Receiver |
| TUBES | TV: VHF - Seventeen, UHF - Eighteen Remote Control Receiver (KRS24C): Four |
| POWER SUPPLY RATING | 110-120 Volts AC, 60 Cycle<br>TV (VHF) & Remote Control Receiver KRS24C - 180 Watts, 1.65 Amp. @ 117 Volts AC (190 Watts, 1.9 Amp. While Tuning) |
| TUNING RANGE | Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier) |

## SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

It is necessary to remove the chassis and picture tube for safety glass removal. See "Disassembly Instructions" on back page.

FUSE DEVICE

TV: Two fuse wires are used for filament protection. (For location, see M3 & M4 in photo "TV Chassis - Front View".)

A fusible resistor is used for horiz. - vert. sweep protection. (For location, see "Tube Placement Chart".)

TUNER OSCILLATOR ADJUSTMENTS

To touch up VHF Oscillator, remove touch bar knob by pulling outward at bottom. Snap out small rectangle plate behind touch bar knob.

AGC

The AGC may be varied by means of an AGC Control. (For location, see "Tube Placement Chart".)

FOCUS

No provision is made to vary the focus on this receiver.

SYNC STABILITY

Sync stability may be varied by means of a Sync Stabilizer Control. (For location, see "Tube Placement Chart".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Stabilizing Coil Slug. (For location, see "Tube Placement Chart".)

WIDTH

The width may be varied by a Width Coil. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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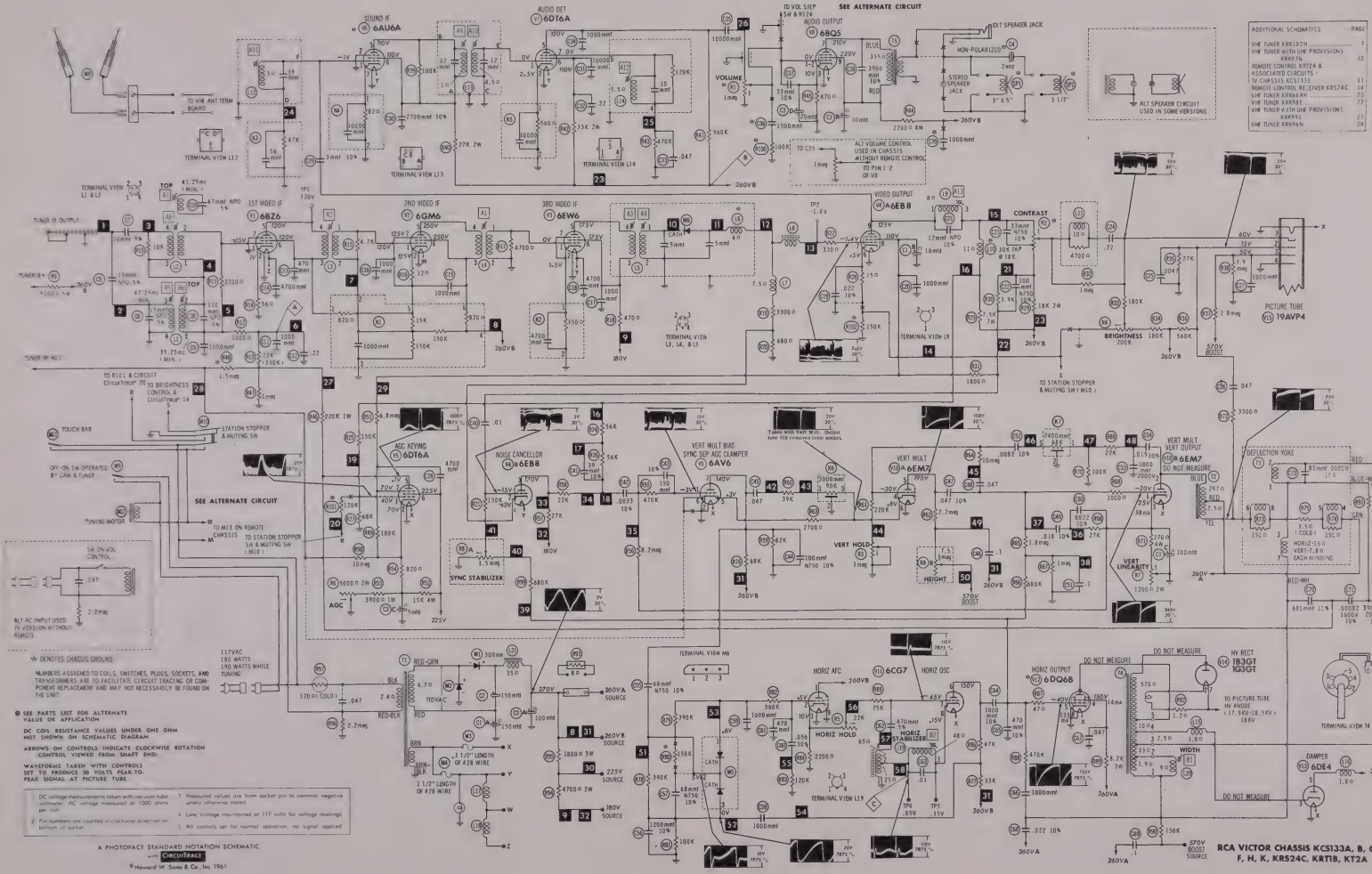
KA715



RCA VICTOR CHASSIS KCS133A, B, C, E, F, H, K, KRS24C, KRT1B, KT2A

SET 536 FOLDER 1


RCA VICTOR CHASSIS KCS133A, B, C, E, F, H, K, KRS24C, KRT1B, KT2A
SEE ALTERNATE CIRCUIT
SOUND IF V6 6AU6A
AUDIO DET V7 6D T6A
AUDIO OUTPUT V8 6BQ5
1ST VIDEO IF V1 6BZ6
2ND VIDEO IF V2 6GM6
3RD VIDEO IF V3 6EW6
VIDEO OUTPUT V4 6EB8
CONTRAST
BRIGHTNESS
PICTURE TUBE V15 19AVP4
AGC KEYING V5 6DT6A
NOISE CANCELLER V6 6EB8
VERT MULT BIAS SYNC SEP AGC CLAMPER V9 6AV6
VERT MULT V10A 6EM7
VERT MULT V10B 6EM7
VERT HOLD
HEIGHT
VERT LINEARITY
VERT OUTPUT V12 6DQ8
DEFLECTION YOKE
SYNC STABILIZER
HORIZ AFC
HORIZ OSC V11 6CG7
HORIZ HOLD
HORIZ STABILIZER
HORIZ OUTPUT V13 6DQ68
HV RECT 1B3GT K3G3T
DAMPER V13 6DE4
WIDTH
DO NOT MEASURE
TO PICTURE TUBE HV ANODE 17.5KV-18.5KV 18KV
570V BOOST
260VA
260VB
180V
225V
TUNER IF OUTPUT
TUNER B+
TUNER AGC
TOUCH BAR
STATION STOPPER & MUTING SW
TUNING MOTOR
ON-OFF SW-OPERATED BY CAM & TUNER
SW ON VOL CONTROL
ALT AC INPUT USED IN VERSION WITHOUT REMOTE
ALT SPEAKER JACK
NON-POLARIZED
STEREO SPEAKER JACK
ALT SPEAKER CIRCUIT USED IN SOME VERSIONS
ALT VOLUME CONTROL USED IN CHASSIS WITHOUT REMOTE CONTROL
TO VOL STEP SW & R174
TO M13 ON REMOTE CHASSIS
TO STATION STOPPER SW & MUTING SW (M10)
TO R151 & CIRCUIT CIRCUIT NO. 20
TO BRIGHTNESS CONTROL & CIRCUIT NO. 14
TO VHF ANT TERM BOARD
TERMINAL VIEW L12
TERMINAL VIEW L13
TERMINAL VIEW L14
TERMINAL VIEW L9
TERMINAL VIEW L1, L4, & L5
TERMINAL VIEW M6
TERMINAL VIEW T4
TERMINAL VIEW L11 & L2
117VAC 180 WATTS 190 WATTS WHILE TUNING
DENOTES CHASSIS GROUND
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION CONTROL VIEWED FROM SHAFT END.
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings
5. All controls set for normal operation, no signal applied
A PHOTOFACT STANDARD NOTATION SCHEMATIC
CIRCUITRACE
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ADDITIONAL SCHEMATICS PAGE
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VHF TUNER WITH UHF PROVISIONS KRK97N ..... 10
REMOTE CONTROL KR12A & ASSOCIATED CIRCUITS - IN CHASSIS KCS133E ..... 11
REMOTE CONTROL RECEIVER KRS24C ..... 14
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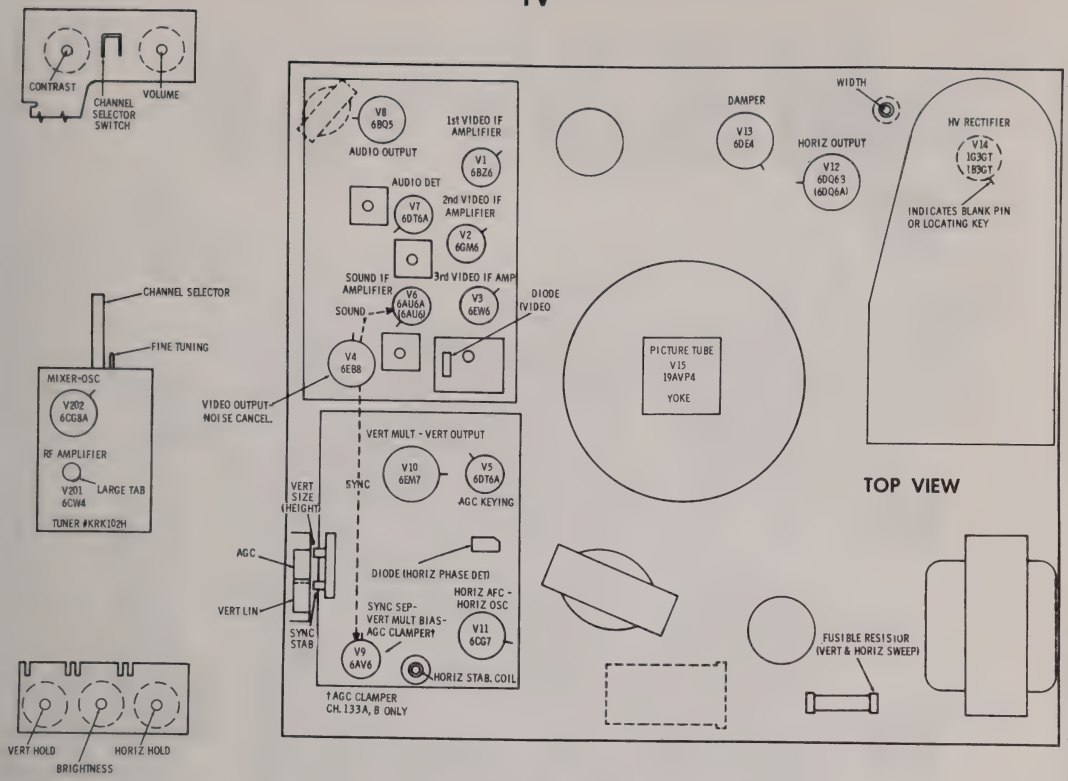
RCA VICTOR CHASSIS KCS133A, B, C, E, F, H, K, KRS24C, KRT1B, KT2A

# TUBE PLACEMENT CHART
## TV




# TUBE FAILURE CHECK CHART

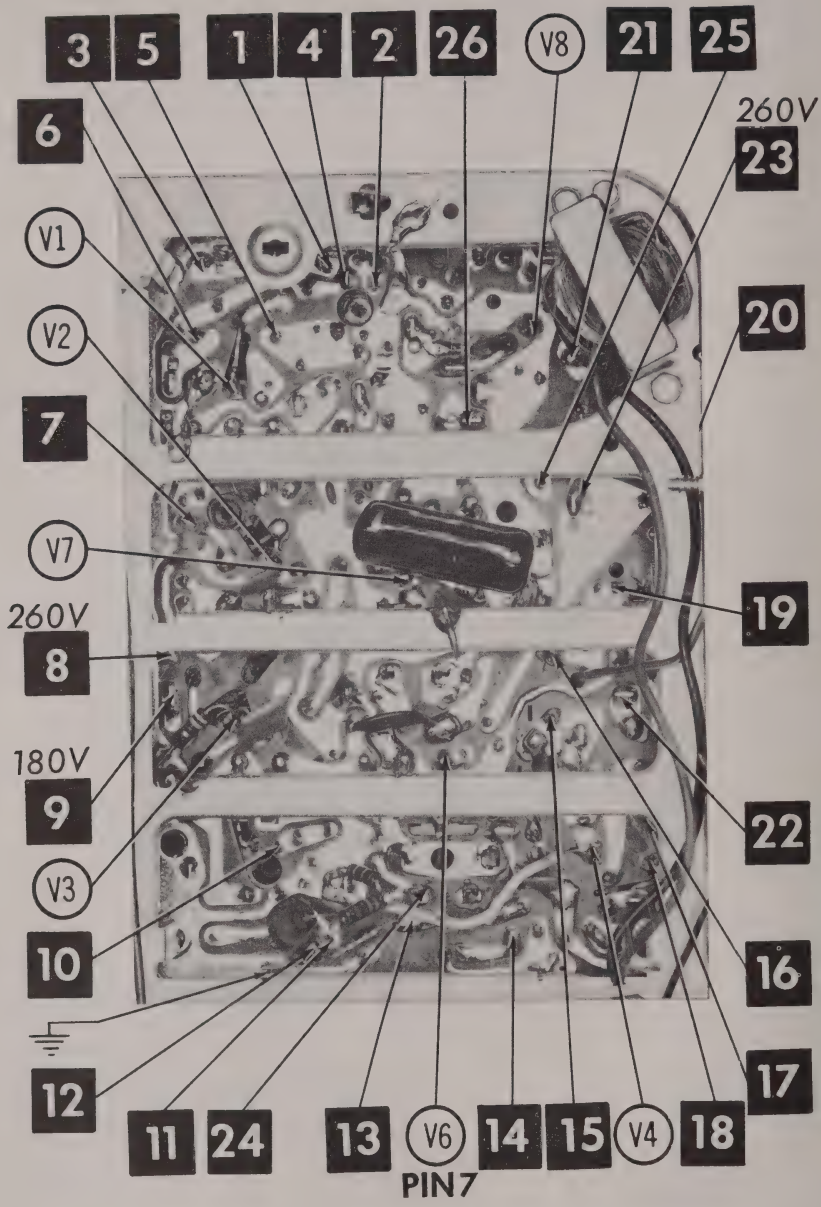
The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Rectifiers (B+)
Raster, no sound Fuse (Fil.)
Sound, no raster Fuse (Fil.)

SWEEP FAILURE
No raster, has sound V11, V12, V13, V14, V15, Fusible Res. (Horiz. & Vert. Sweep)
No vertical deflection V10, V9
Poor vert. linearity or foldover V10
Poor horiz. linearity or foldover V11, V12, V13
Narrow picture V11, V12, V13, Rectifiers (B+)
Vert. off freq. V10
Horiz. off freq. Diodes (Horiz. Phase Det.), V11

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V15
Has pic, no sound V6, V7, V8
Overloaded picture V5

SYNC FAILURE
No vert. sync V9
No horiz. sync V9
No vert. or horiz. sync V9




A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VIDEO, SOUND PRINTED BOARD

A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

SYNC, AGC, VERT-HORIZ SWEEP PRINTED BOARD

# TV ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage Lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A1 thru A11, A13 .... GENERAL CEMENT #8282, 8606, 8606L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A12 ..... GENERAL CEMENT #8721, 8722
WALSCO #2519

VIDEO IF ALIGNMENT

Connect a clip lead from point (A) to chassis.
Couple signal generator loosely to sweep cable to provide markers.

| | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1. | High side thru 1500mmf ceramic capacitor to Mixer Grid Wafer Contact thru access hole (adjacent to Mixer Grid Wafer) located in left side of tuner shield for KRK96, KRK97, KRK98 and KRK99 series tuners or to Mixer Grid Test Point for KRK102 series tuners. | Not Used | 45.5MC | Any non-interfering channel | Use VTVM DC probe thru 10K to TP-2. Common to chassis. | A1 | Adjust for maximum deflection. |
| 2. | " | " | 43.0MC | " | " | A2 | " |
| 3. | " | 45MC (10MC Swp.) | 41.25MC 45.75MC | " | Vert. Amp. thru 10K to TP-2. Low side to chassis. | A3, A4 | Connect the negative lead of a 3.5 volt bias supply to point (T). Positive to chassis. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Use 5 volts peak to peak on scope. |
| 4. | " | Not Used | 47.25MC | " | Use VTVM DC probe thru 10K to TP-2. Common to chassis. | A5 | Adjust for MINIMUM deflection. |
| 5. | " | " | 39.25MC | " | " | A6 | " |
| 6. | " | " | 41.25MC | " | " | A7 | " |
| 7. | " | 45MC (10MC Swp.) | 42.5MC 45.75MC | " | Connect a .001mfd in series with a 180Ω carbon resistor from TP-1 to chassis with the capacitor connected to TP-1. Vert. Amp. of scope thru diode probe to junction of the resistor and capacitor. Low side to chassis. | Mixer Plate Coil & A8 | Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. Use .5 volts peak to peak on scope. Repeat step 4. Remove capacitor and resistor from TP-1. |
| 8. | " | " | 42.5MC 45.0MC 45.75MC | " | Vert. Amp. thru 10K to TP-2. Low side to chassis. | A1, A2, A3, A4 | Connect the negative lead of a 6 volt bias supply to point (A). Positive to chassis. Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. Use 5 volts peak to peak on scope. |
| 9. | Insert pad (Fig. 4) in series with high side of generator. Connect to same point. | " | 45.75MC | " | DC probe of VTVM to TP-2. Common to chassis. | | Adjust generator output to provide exactly 1.5 volts on VTVM. |
| 10. | " | " | 41.25MC | " | " | A2, A3, A4 | Retouch for 1.2 to 1.5 volts on VTVM while maintaining response similar to Fig. 3. |
| 11. | Across antenna terminals thru matching network (Fig. 5). | Each VHF channel in turn. | 42.5MC 45.0MC 45.75MC | All VHF channels | Vert. Amp. thru 10K to TP-2. Low side to chassis. | A1, A3, A4 | Check for response similar to Fig. 3. Retouch SLIGHTLY to correct for tilt or other conditions that are approximately the same on all channels. |

SOUND IF ALIGNMENT

Connect the negative lead of a 10 volt bias supply to point (A). Positive to chassis.
Set Contrast Control fully clockwise.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CHANNEL | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 12. | High side thru .001mfd to TP-2. Low side to chassis. | 4.5MC (Unmod.) | Any non-interfering channel | DC probe thru diode probe (Fig. 6) to pin 7 (grid 3) of Audio Det. Low side to chassis. | A9, A10, A11 | Adjust for maximum negative voltage on meter. Attenuate generator output for a reading between 1.0 to 1.5 volts on meter when finally peaked. Peak A9 and A10 with maximum core separation. Adjust A11 for maximum deflection. |
| 13. | Remove VTVM and diode probe. Connect scope across Volume Control. Turn off signal generator and tune in the strongest TV station in the area and adjust Volume Control for normal volume. Preset coil slug A12 even with top of coil form. While observing scope and listening to sound, adjust A12 clockwise to a peak. Continue turning clockwise to a second louder peak and adjust for maximum on second peak. | | | | | |

# TV ALIGNMENT INSTRUCTIONS (cont)

4.5MC TRAP ALIGNMENT

Set Contrast Control fully clockwise.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 14. | High side thru .01mfd to TP-2. Low side to chassis. | 4.5MC (400∿ Mod.) | Any non-interfering channel | Vert. Amp. thru demodulator probe to cathode of picture tube. Low side to chassis. | A13 | Adjust for MINIMUM 400∿ indication on scope. |

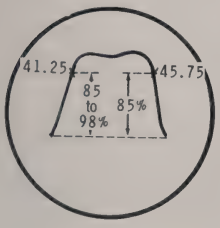


FIG.1

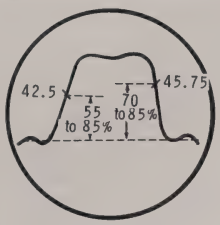


FIG.2

FIG.3

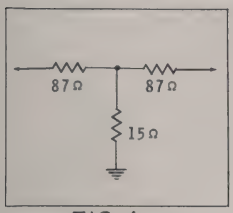


FIG. 4

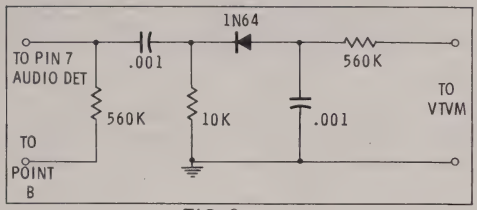


FIG.6

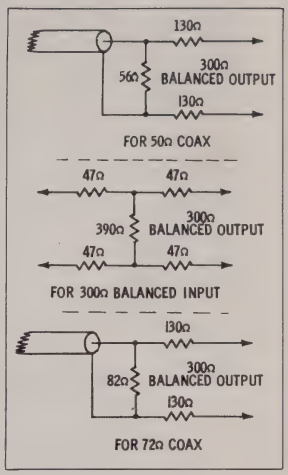
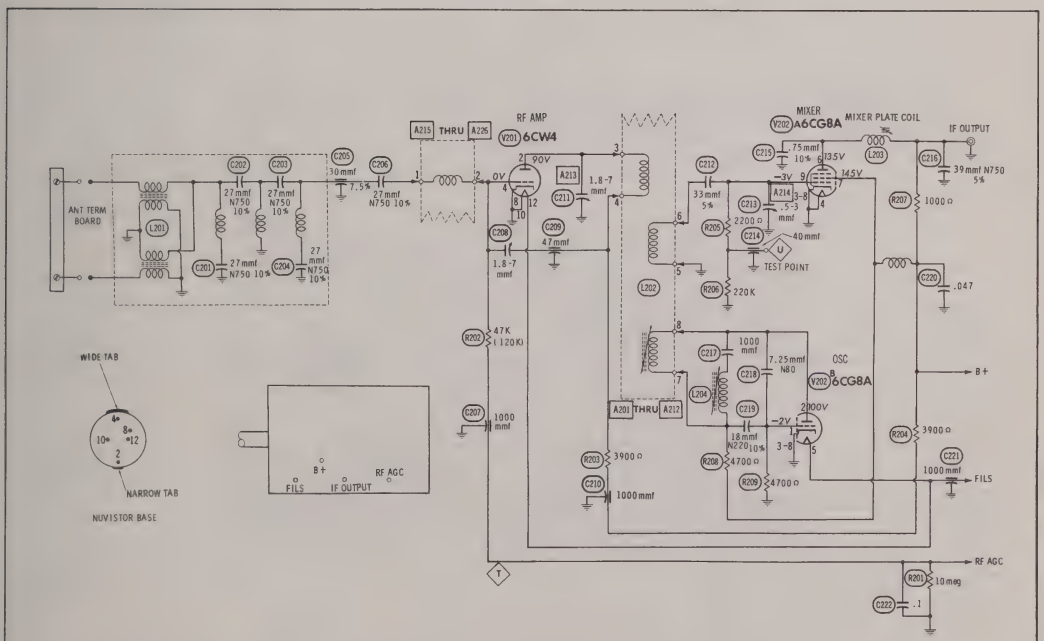


FIG.5

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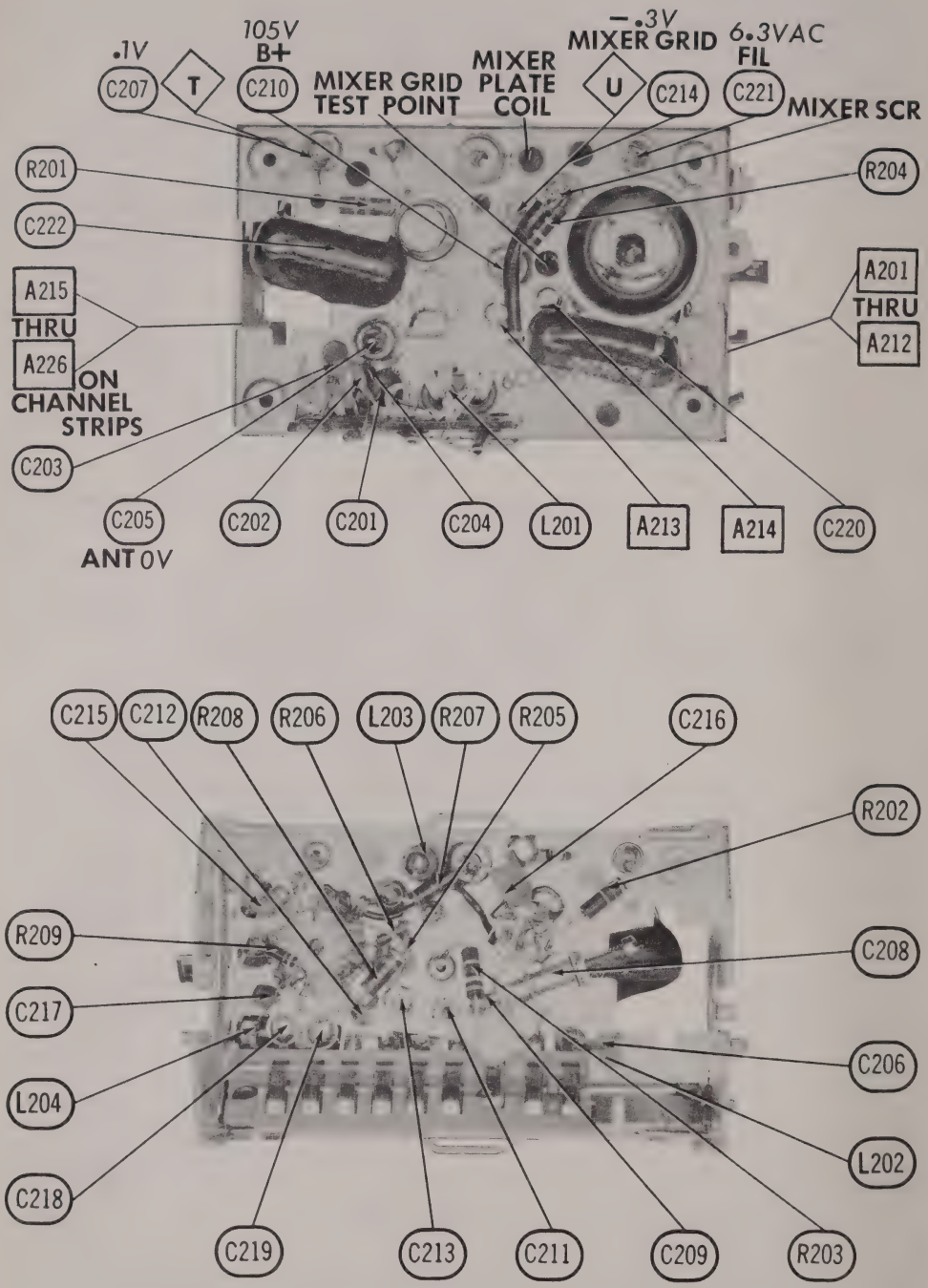
## VHF TUNER KRK102H




VHF TUNER KRK102H

# TUNER ALIGNMENT INSTRUCTIONS

KR K102H

PRE-ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools: A201 thru A212 .... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A213, A214 ..... GENERAL CEMENT #8697, 9291, 9294
WALSCO #2520, 2522, 2523, 2524, 2534, 2537

VHF OSCILLATOR ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point Ⓣ. Positive to chassis.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Set the Fine Tuning to the Center of its range.
Connect a 39 ohm composition resistor in series with a 1000mmf capacitor across the tuner output jack.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | Across VHF antenna terminals thru matching pad (See Fig. 201). | 257MC | 13 | Vert. Amp. thru 10K to point Ⓤ. Low side to chassis. | A201 | Adjust for zero beat. |
| | " | 251MC | 12 | " | A202 | " |
| | " | 245MC | 11 | " | A203 | " |
| | " | 239MC | 10 | " | A204 | " |
| | " | 233MC | 9 | " | A205 | " |
| | " | 227MC | 8 | " | A206 | " |
| | " | 221MC | 7 | " | A207 | " |
| | " | 129MC | 6 | " | A208 | " |
| | " | 123MC | 5 | " | A209 | " |
| | " | 113MC | 4 | " | A210 | " |
| | " | 107MC | 3 | " | A211 | " |
| | " | 101MC | 2 | " | A212 | " |

VHF RF AND MIXER ALIGNMENT

Connect Bias as under "VHF Oscillator Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Leave tuner output jack terminated as under "VHF Oscillator Alignment".

| | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 2. | Across VHF antenna terminals thru matching pad (Fig. 201). | 195MC (10MC Swp.) | 193.25MC<br>197.75MC | 10 | Vert. Amp. thru 10K to point Ⓤ. Low side to chassis. | A213, A214 | Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown. |
| | " | 213MC | 211.25MC<br>215.75MC | 13 | " | A215 | If necessary, adjust to correct for improper tilt. |
| | " | 207MC | 205.25MC<br>209.75MC | 12 | | A216 | Adjust by expanding or compressing coil turns. |
| | " | 201MC | 199.25MC<br>203.75MC | 11 | | A217 | " |
| | " | 195MC | 193.25MC<br>197.75MC | 10 | | A218 | " |
| | " | 189MC | 187.25MC<br>191.75MC | 9 | | A219 | " |
| | " | 183MC | 181.25MC<br>185.75MC | 8 | | A220 | " |
| | " | 177MC | 175.25MC<br>179.75MC | 7 | | A221 | " |
| | " | 85MC | 83.25MC<br>87.75MC | 6 | | A222 | " |
| | " | 79MC | 77.25MC<br>81.75MC | 5 | | A223 | " |
| | " | 69MC | 67.25MC<br>71.75MC | 4 | | A224 | " |
| | " | 63MC | 61.25MC<br>65.75MC | 3 | | A225 | " |
| | " | 57MC | 55.25MC<br>59.75MC | 2 | | A226 | " |

If bandwidth is out of limits on most high VHF channels (7-13), adjust A227 by expanding or compressing coil turns.

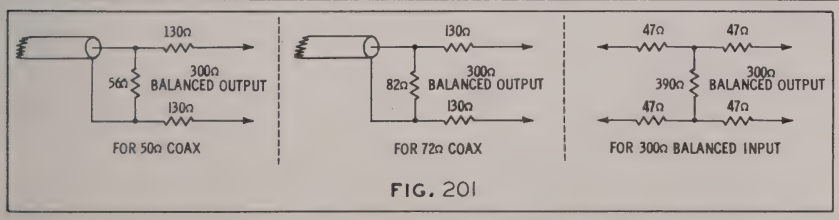
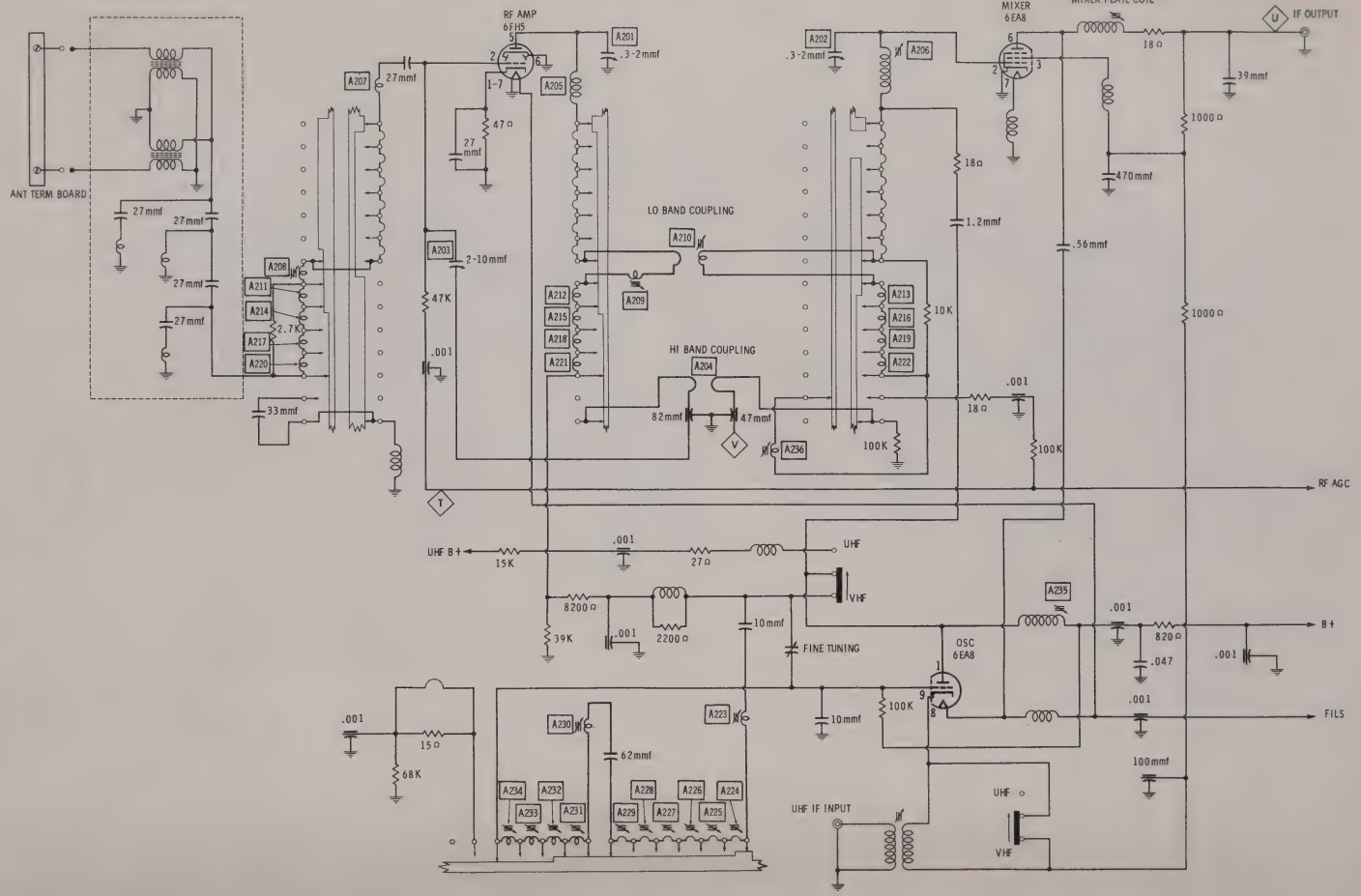



FIG. 201

FIG. 202

RCA VICTOR CHASSIS KCS133A, B, C, E, F, H, K, KRS24C, KRT1B, KT2A

FOLDER 1

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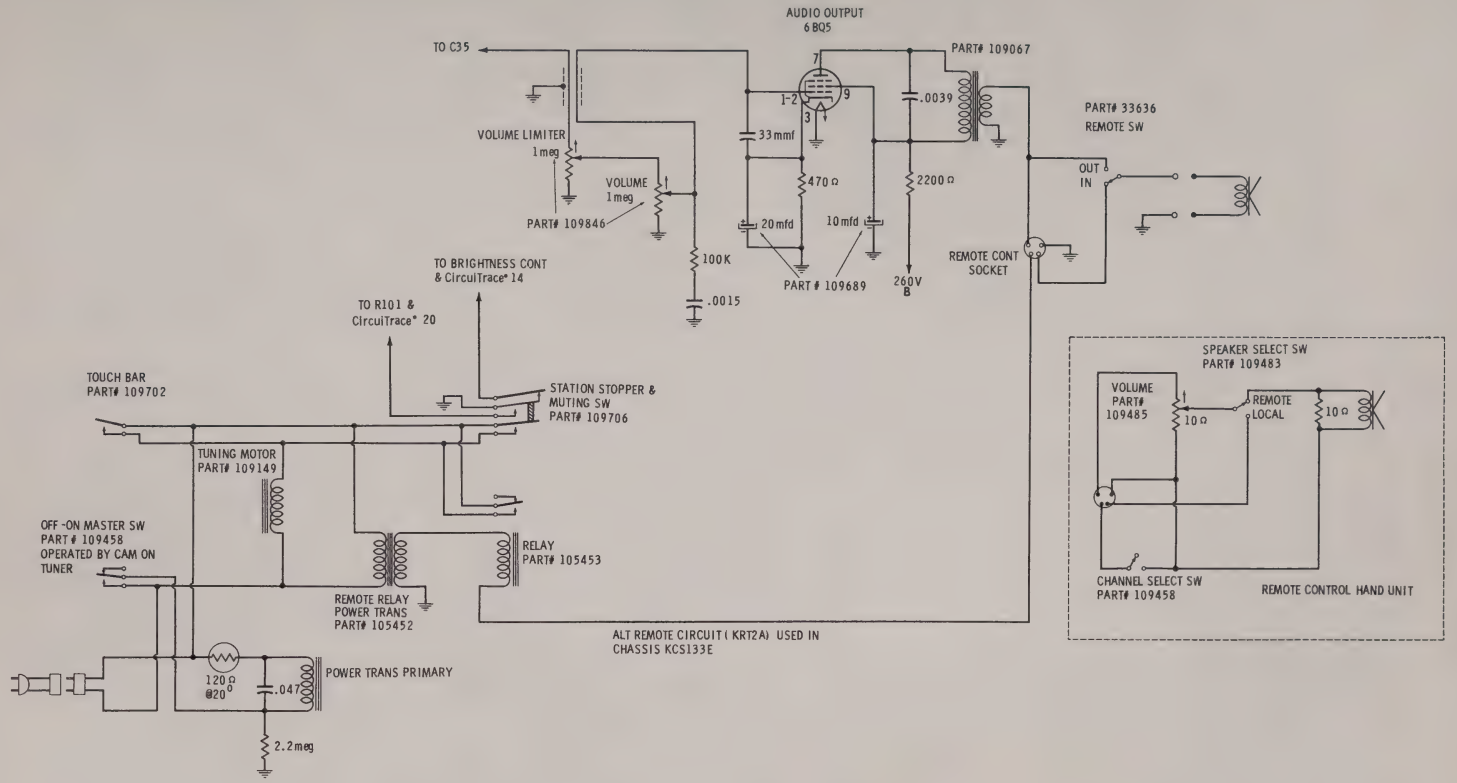
# VHF TUNER WITH UHF PROVISIONS KRK97N

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REMOTE CONTROL KRT2A & ASSOCIATED CIRCUITS - TV CHASSIS KCS133E

# TUNER ALIGNMENT INSTRUCTIONS

## KRK96N, 97N

PRE-ALIGNMENT INSTRUCTIONS FOR TUNERS #KRK96 and KRK97

Allow a 20 minute warm-up period for the receiver and test equipment.

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Connect the negative lead of a 2.5volt bias supply to point (T) . Positive to chassis.

| | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1. | Across VHF Antenna Terminals thru pad (Fig. 201). | 183MC | 181.25MC<br>185.75MC | 8 | Vert. Amp. to point (U) . Low side to chassis. | A201, A202 | Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown. If oscillation is obtained and distorts the waveform, adjust A203 for MINIMUM gain and repeat adjustment of A201 and A202. |
| 2. | " | 195MC | | 10 | " | A203 | Increase bias to -10 to 15 volts. Adjust A203 for MINIMUM response. |
| 3. | " | 183MC | 181.25MC<br>185.75MC | 8 | " | A201, A202, A204 | Adjust A201 for proper frequency, A202 for proper tilt and A204 for proper bandwidth. |
| 4. | " | 213MC | 211.25MC<br>215.75MC | 13 | " | A205, A206 | Adjust A205 for proper frequency and A206 for proper tilt. |
| 5. | " | " | " | " | " | A207 | Adjust for maximum gain at center of response. Repeat steps 3 and 4. |
| 6. | Turn generator off. | | | | Use VTVM DC probe to point (V). Common to chassis. | | With generator turned off, measure Oscillator injection voltage. It should be -2 and -5 volts. |
| 7. | Across Antenna Terminals thru pad (Fig. 201). | 85MC | 83.25MC<br>87.75MC | 6 | Vert. Amp. of scope to point (U) . Low side to chassis. | A208, A209, A210 | Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown. First adjustment is for amplitude, second for frequency, and third for tilt. |
| 8. | " | 79MC | 77.25MC<br>81.75MC | 5 | " | A211, A212 A213 | " |
| 9. | " | 69MC | 67.25MC<br>71.75MC | 4 | " | A214, A215 A216 | " |
| 10. | " | 63MC | 61.25MC<br>65.75MC | 3 | " | A217, A218 A219 | " |
| 11. | " | 57MC | 55.25MC<br>59.75MC | 2 | " | A220, A221 A222 | " |

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect the negative lead of a 2.5volt bias supply to point (T) . Positive to chassis.

| | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 12. | Across VHF Antenna Terminals thru pad (Fig. 201). | Not Used | 257MC | 13 | Vert. Amp. to point (U) . Low side to chassis. | A223 | Adjust for zero beat. |
| 13. | " | " | 251MC | 12 | " | A224 | " |
| 14 | " | " | 245MC | 11 | " | A225 | " |
| 15. | " | " | 239MC | 10 | " | A226 | " |
| 16. | " | " | 233MC | 9 | " | A227 | " |
| 17. | " | " | 227MC | 8 | " | A228 | " |
| 18. | " | " | 221MC | 7 | " | A229 | " |
| 19. | " | " | 129MC | 6 | " | A230 | " |
| 20. | " | " | 123MC | 5 | " | A231 | " |
| 21. | " | " | 113MC | 4 | " | A232 | " |
| 22. | " | " | 107MC | 3 | " | A233 | " |
| 23. | " | " | 101MC | 2 | " | A234 | " |

# TUNER ALIGNMENT INSTRUCTIONS (cont)

## KRK96N, 97N

UHF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Connect the negative lead of a 2.5volt bias supply to point (T). Positive to chassis.
Connect a 180Ω resistor across input cable of scope.

| | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 24. | High side thru input head (Fig. 203) to point (W). Low side to chassis. | 45MC (10MC Swp.) | 41.25MC 45.75MC | UHF Any | Vert. Amp. thru 330mmf to plate of Mixer. Low side to chassis. | A235, A236 | Adjust for maximum gain and symmetry of response similar to Fig. 204 with markers as shown. |
| 25. | Across UHF Antenna Terminals. | To center frequency of channel to be received. (See Chart #1) | " | Channel to be Received | Scope across Video Det. Load | A235, A236 | Retouch for response similar to Fig. 205. |

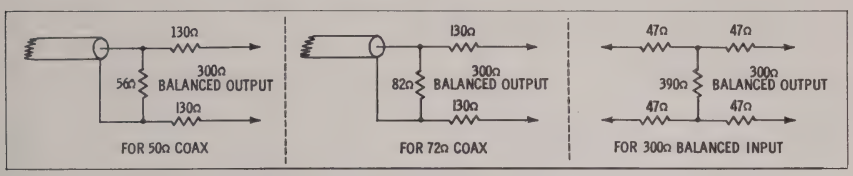



FIG. 201

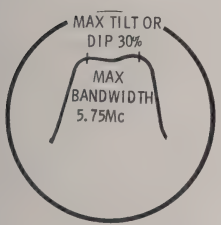



FIG. 202

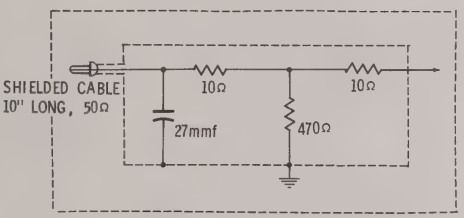



FIG. 203

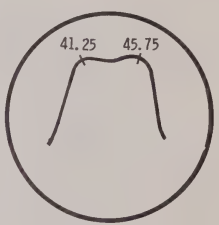



FIG. 204

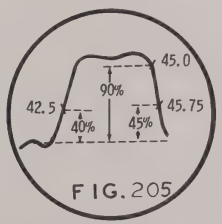
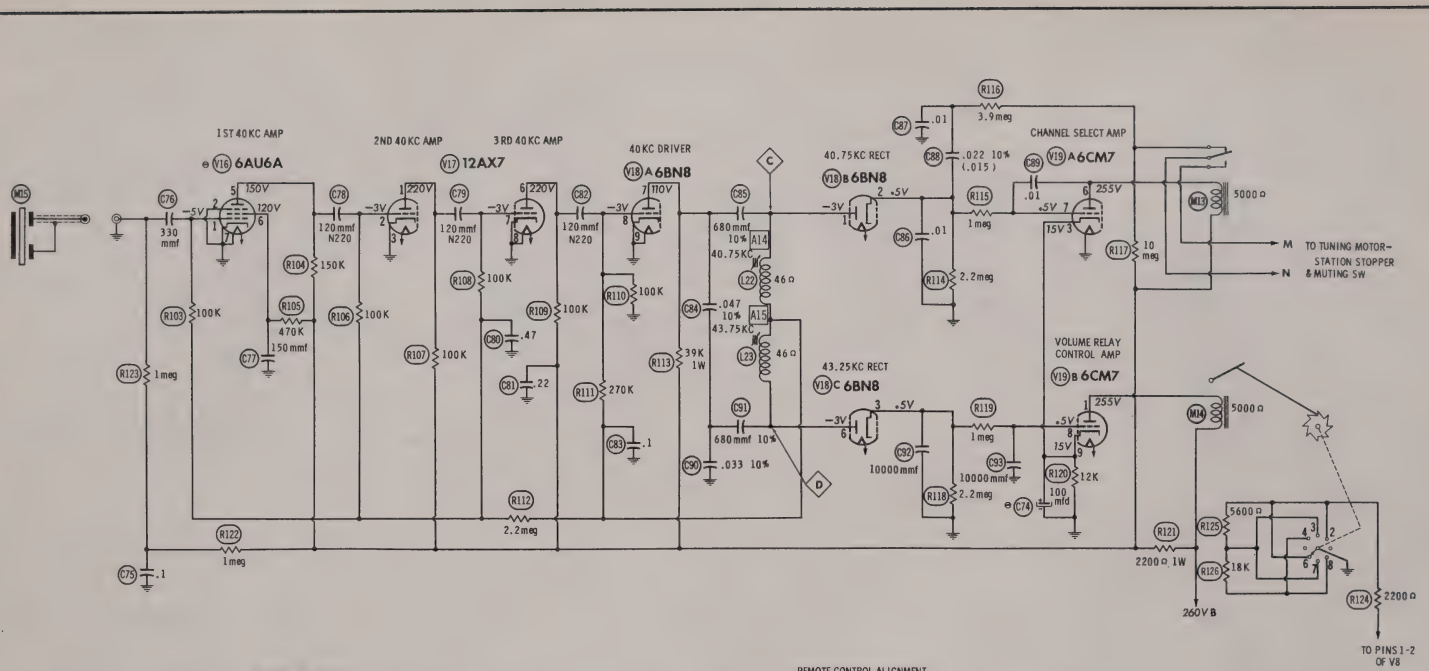



FIG. 205

## CHART NO. 1

| Channel No. | Frequency Band (Mc) | Video Carrier | Sound Carrier | Channel No. | Frequency Band (Mc) | Video Carrier | Sound Carrier | Channel No. | Frequency Band (Mc) | Video Carrier | Sound Carrier | Channel No. | Frequency Band (Mc) | Video Carrier | Sound Carrier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 54-60 | 55.25 | 59.75 | 23 | 524-530 | 525.25 | 529.75 | 44 | 650-656 | 651.25 | 655.75 | 64 | 770-776 | 771.25 | 775.75 |
| 3 | 60-66 | 61.25 | 65.75 | 24 | 530-536 | 531.25 | 535.75 | 45 | 656-662 | 657.25 | 661.75 | 65 | 776-782 | 777.25 | 781.75 |
| 4 | 66-72 | 67.25 | 71.75 | 25 | 536-542 | 537.25 | 541.75 | 46 | 662-668 | 663.25 | 667.75 | 66 | 782-788 | 783.25 | 787.75 |
| 5 | 76-82 | 77.25 | 81.75 | 26 | 542-548 | 543.25 | 547.75 | 47 | 668-674 | 669.25 | 673.75 | 67 | 788-794 | 789.25 | 793.75 |
| 6 | 82-88 | 83.25 | 87.75 | 27 | 548-554 | 549.25 | 553.75 | 48 | 674-680 | 675.25 | 679.75 | 68 | 794-800 | 795.25 | 799.75 |
| 7 | 174-180 | 175.25 | 179.75 | 28 | 554-560 | 555.25 | 559.75 | 49 | 680-686 | 681.25 | 685.75 | 69 | 800-806 | 801.25 | 805.75 |
| 8 | 180-186 | 181.25 | 185.75 | 29 | 560-566 | 561.25 | 565.75 | 50 | 686-692 | 687.25 | 691.75 | 70 | 806-812 | 807.25 | 811.75 |
| 9 | 186-192 | 187.25 | 191.75 | 30 | 566-572 | 567.25 | 571.75 | 51 | 692-698 | 693.25 | 697.75 | 71 | 812-818 | 813.25 | 817.75 |
| 10 | 192-198 | 193.25 | 197.75 | 31 | 572-578 | 573.25 | 577.75 | 52 | 698-704 | 699.25 | 703.75 | 72 | 818-824 | 819.25 | 823.75 |
| 11 | 198-204 | 199.25 | 203.75 | 32 | 578-584 | 579.25 | 583.75 | 53 | 704-710 | 705.25 | 709.75 | 73 | 824-830 | 825.25 | 829.75 |
| 12 | 204-210 | 205.25 | 209.75 | 33 | 584-590 | 585.25 | 589.75 | 54 | 710-716 | 711.25 | 715.75 | 74 | 830-836 | 831.25 | 835.75 |
| 13 | 210-216 | 211.25 | 215.75 | 34 | 590-596 | 591.25 | 595.75 | 55 | 716-722 | 717.25 | 721.75 | 75 | 836-842 | 837.25 | 841.75 |
| 14 | 470-476 | 471.25 | 475.75 | 35 | 596-602 | 597.25 | 601.75 | 56 | 722-728 | 723.25 | 727.75 | 76 | 842-848 | 843.25 | 847.75 |
| 15 | 476-482 | 477.25 | 481.75 | 36 | 602-608 | 603.25 | 607.75 | 57 | 728-734 | 729.25 | 733.75 | 77 | 848-854 | 849.25 | 853.75 |
| 16 | 482-488 | 483.25 | 487.75 | 37 | 608-614 | 609.25 | 613.75 | 58 | 734-740 | 735.25 | 739.75 | 78 | 854-860 | 855.25 | 859.75 |
| 17 | 488-494 | 489.25 | 493.75 | 38 | 614-620 | 615.25 | 619.75 | 59 | 740-746 | 741.25 | 745.75 | 79 | 860-866 | 861.25 | 865.75 |
| 18 | 494-500 | 495.25 | 499.75 | 39 | 620-626 | 621.25 | 625.75 | 60 | 746-752 | 747.25 | 751.75 | 80 | 866-872 | 867.25 | 871.75 |
| 19 | 500-506 | 501.25 | 505.75 | 40 | 626-632 | 627.25 | 631.75 | 61 | 752-758 | 753.25 | 757.75 | 81 | 872-878 | 873.25 | 877.75 |
| 20 | 506-512 | 507.25 | 511.75 | 41 | 632-638 | 633.25 | 637.75 | 62 | 758-764 | 759.25 | 763.75 | 82 | 878-884 | 879.25 | 883.75 |
| 21 | 512-518 | 513.25 | 517.75 | 42 | 638-644 | 639.25 | 643.75 | 63 | 764-770 | 765.25 | 769.75 | 83 | 884-890 | 885.25 | 889.75 |
| 22 | 518-524 | 519.25 | 523.75 | 43 | 644-650 | 645.25 | 649.75 | | | | | | | | |



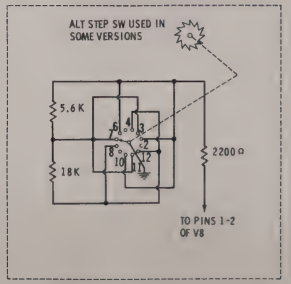

RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V16 | 6AU6A | 2.7meg | 0Ω | FIL | FIL | †150K | †470K | 0Ω | | |
| V17 | 12AX7 | †100K | 2.7meg | 0Ω | FIL | FIL | †100K | 2.7meg | 0Ω | FIL |
| V18 | 6BN8 | 370K | 2.2meg | 2.2meg | FIL | FIL | 370K | †41K | 100K | 0Ω |
| V19 | 6CM7 | †5000Ω | NC | 21K | FIL | FIL | †5000Ω | 3.2meg | 3.2meg | 12K |

† MEASURED FROM OUTPUT OF M1. NC NO CONNECTION

REMOTE CONTROL ALIGNMENT

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|
| 1. | High side thru .001mfd to pin 1 (grid) of 1st 40KC Amp. Low side to chassis. | 20.375KC | Diode probe to point Ⓒ. Common to chassis. | A11 | Adjust for maximum deflection. |
| 2. | " | 21.625KC | Diode probe to point Ⓓ. Common to chassis. | A12 | Adjust for maximum deflection. |




A PHOTOFACT STANDARD NOTATION SCHEMATIC
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# REMOTE CONTROL RECEIVER KRS24C

# TV PARTS LIST AND DESCRIPTIONS

## TUBES

| • GENERAL ELECTRIC • RAYTHEON • SYLVANIA • | | | | | |
|---|---|---|---|---|---|
| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
| V1 | 1st Video IF Amplifier | 6BZ6 | V9 | Sync Sep. - AGC Clamper ▲ - Vert. Mult. Bias | 6AV6 |
| V2 | 2nd Video IF Amplifier | 6GM8 | V10 | Vert. Mult. - Vert. Output | 6EM7 |
| V3 | 3rd Video IF Amplifier | 6EW6 | V11 | Horiz. AFC - Horiz. Osc. | 6CG7 |
| V4 | Video Output - Noise Canceller | 6EB8 | V12 | Horiz. Output | 6DQ8B (6DQ6A) * |
| V5 | AGC Keying | 6DT8A | V13 | Damper | 6DE4 |
| V6 | Sound IF Amplifier | 6AU6A (6AU6) * | V14 | HV Rectifier | 1G3GT/1B3GT |
| V7 | Audio Detector | 6DT8A | | | |
| V8 | Audio Output | 6BQ5 | | | |

▲ AGC Clamper used in Chassis KCS133A, B only. * Alternate

## PICTURE TUBE

| ITEM No. | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|
| | RCA Victor PART No. | GENERAL ELECTRIC PART No. | RCA PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| V15 | 19AVP4 | | 19AVP4 ① | | | ① Aluminized |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | RCA Victor PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
| C1A | ▲150 | 200 | 109688 | AFH4-56-85 | C0238 | FP420.28 | TMQ-4277 | TVL-4634.2 | |
| B | ■10 | 350 | | | | | | | |
| C | ▲100 | 50 | | | | | | | |
| C2 | 150 | 200 | 107472 | AFH1-25-70 | | WP125.9 | TD-150-200 | TVLS-1539 * | |
| C3A | ▲100 | 350 | 109689 | AFH4-56-60 | D0473.3 | FP420.405 | TMQ-4268 | TVL-4632 | |
| B | ■10 | 350 | | | | | | | |
| C | ▲5 | 150 | | | | | | | |
| D | 20 | 25 | | | | | | | |
| C4 | 2 | 10NP | 106556 | PRS7300 | BBR4-150 | TCN502 | | TVANS-1202 * | ① |

① Some versions use 4mfd @ 10V NP (Part #106353).
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C5 | 15 NPO 5% | | | DTZ-15 | C10Q15C | CCTO-150 | CNO-415 | 10TCC-Q15 |
| C6 | 15 NPO 5% | | | DTZ-15 | C10Q15C | CCTO-150 | CNO-415 | 10TCC-Q15 |
| C7 | 10 5% | | NPO-DI 10 | DTZ-10 | C10Q1C | CCTO-100 | CNO-410 | 10TCC-Q10 |
| C8 | 110 NPO 5% | | | TCZ-110 | | | | |
| C9 | 1000 | | BPD-01 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C10 | 47 NPO 5% | | | DTZ-47 | C10Q47C | | CNO-447 | 10TCC-Q47 |
| C11 | 1000 | | BPD-01 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C12 | .22 200V | | P288N-22 | | CUB2P22 | 2DP-4-224 | GEM-2022 | 2TM-P22 |
| C13 | 470 | | BPD-00047 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C14 | 4700 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C15 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C16 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C17 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C18 | 4700 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C19 | .022 200V 10% | | V84C2S22-10% | | PM4S22 | 4DP-2-223 | GEM-1612 | 2TM-S22 |
| C20 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C21 | 12 NPO 10% | | | TCZ-12 | C10Q12C | CCTO-120 | CNO-412 | 10TCC-Q12 |
| C22 | 100 N750 10% | | N750-DI 100 | DTN-100 | C10T1U | CCTN-101 | CN7-310 | 10TCU-T10 |
| C23 | 33 N750 10% | (47) † | N750-DI 33 | DTN-33 | C10Q33U | CCTN-330 | CN7-433 | 10TCU-Q33 |
| C24 | .22 600V | | P688N-22 | | CUB6P22 | 6DP-5-224 | GEM-6022 | 6TM-P22 |
| C25 | .0047 600V | | P688N-0047 | D6-472 | CUB6D47 | 6DP-1-472 | GEM-6247 | 6TM-D47 |
| C26 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-472 | GEM-4147 | 4TM-S47 |
| C27 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C28 | 4700 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C29 | 3 10% | | NPO-SI 3.0 | TCZ-3R3 | C10V3C | CCTO-3R3 | CNO-533 | 10TCC-V33 |
| C30 | 2700 10% | | DI-2700 | | DPMSD27 | CCD-272 | GEM-1623 | 10TS-D27 |
| C31 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C32 | .22 400V | | P488N-22 | | CUB4P22 | 4DP-5-224 | GEM-4022 | 4TM-P22 |
| C33 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C34 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C35 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C36 | 1500 | Note 1 | BPD-0015 | DD-152 | BYA10D15 | CCD-152 | B-215 | 5HK-D15 |
| C37 | 33 10% | | DI-33 | DD-330 | L10Q33 | CCD-330 | GP433 | 10TS-Q33 |
| C38 | 3900 10% | | DI-4000 | | DPMSD39 | CCD-392 | JL-239 | 10TS-D39 |
| C39 | 1000 | Note 1 | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C40 | .01 400V 10% | | V84C4S1-10% | | PM4S1 | 4DP-1-103 | GEM-1611 | 4TM-S10 |
| C41 | 39 10% | | DI-39 | DD-390 | L10Q39 | CCD-390 | GP439 | 10TS-Q39 |
| C42 | .0033 600V 10% | | V84C6D33-10% | | PM6D33 | 6DP-1-332 | GEM-16233 | 6TM-D33 |
| C43 | 150 10% | | DI-150 | DD-151 | L10T15 | CCD-151 | GP315 | 10TS-T15 |
| C44 | 100 N750 10% | | N750-DI 100 | DTN-100 | C10T1U | CCTN-101 | CN7-310 | 10TCU-T10 |
| C45 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C46 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C47 | .047 600V 10% | | V84C6S47-10% | | PM6S47 | 6DP-3-473 | GEM-1615 | 6TM-S47 |
| C48 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C49 | .018 400V 10% | | P684CM-018 | | PM4S2 | 4DP-2-203 | GEM-1612 | 4TM-S20 |
| C50 | .0022 600V 10% | | V84C6D22-10% | | PM6D22 | 6DP-1-222 | GEM-1622 | 6TM-D22 |
| C51 | .1 200V | | P288N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C52 | .0082 400V 10% | | P684CM-0082 | | DPMS6D82 | 6DP-2-822 | GEM-16282 | 6PS-D820 |
| C53 | 1000 2000V | | HVD-30-1000 | DD30-102 | HVB20D1 | 3CCD-102 | 2HV-210 | 30GA-D10 |
| C54 | .015 600V 10% | | V80C6S15-10% | | PM6S15 | 6DP-2-153 | | 6TM-S15 |
| C55 | 68 N750 10% | | N750-DI 68 | DTN-68 | C10Q68U | CCTN-680 | CN7-468 | 10TCU-Q68 |
| C56 | 1200 10% | | DI-1200 | DD-121 | PM6D1 | CCD-122 | GP212 | 10TCC-D12 |
| C57 | 68 N750 10% | | N750-DI 68 | DTN-68 | C10Q68U | CCTN-680 | CN7-468 | 10TCU-Q68 |
| C58 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C59 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |

# TV PARTS LIST AND DESCRIPTIONS (Continued)

## FIXED CAPACITORS (cont)

| ITEM No. | RATING | | | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|---|
| C60 | .056 | 300V | 10% | | P86AC-056 | | DPM5S56 | 4DP-5-563 | | 4PS-S56 |
| C61 | 470 | | | | BPD-00047 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C62 | 470 | | 5% | | 1469-00047 | | SRS747 | CM-19B-471J | MCJ344 | MS-347 |
| C63 | 50 | 400V | | | P48SN-G | D5-103 | CUB4S | 4DP-1-103 | GEM-4II | 4TM-S50 |
| C64 | 1000 | | 10% | | DI-1000 | DD-103 | PM5DA | CCD-103 | GP5I0 | 10TS-D10 |
| C65 | 470 | | 10% | | 1469-00047 | | SRS747 | CM-19B-471J | MCJ344 | MS-347 |
| C66 | 1000 | | | | BPD-001 | DD-102 | BYA10DI | CCD-103 | B-310 | 5HK-D10 |
| C67 | .047 | 600V | | | P68SN-047 | DD-503 | CUB5S47 | 6DP-3-473 | GEM-6147 | 6TM-S47 |
| C68 | .022 | 600V | 10% | | V86CB522-10% | | PM6S22 | 6DP-3-223 | GEM-1613 | 6TM-S22 |
| C69 | .1 | 400V | | | P48SN-I | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C70 | 680 | | 10% | | DI-680 | DD-681 | SR5T68 | CCD-681 | GP368 | 10TS-T68 |
| C71 | .00082 | 1600V | 10% | | | | | VCM-20-821K | | |
| C72 | 390 | 2000V | 10% | 4104891 | | | | VCM-20-391K | | |
| C73 | 82 | 2000V | 10% | | | | HVA20Q82 | VCM-20-821K | 3DY-482 | |

Note 1. Not used in some versions. # RCA Victor Part Number. † Alternate Value.

## CONTROLS

| ITEM No | RATING RESISTANCE | WATTS | REPLACEMENT DATA RCA Victor PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 1meg | ½ | 109691 ① | | A47-1meg-Z | B13-137 | U53 | Volume |
| B | Shaft | | | | R8-3/18 | S1K3 | D8-37 | |
| R2A | 30K | ½ | 109693 ② | | | B30-123X | | Contrast |
| B | 15K Tap | | | | | | | |
| | Shaft | | | | | S1K3 | | |
| R3A | 1meg | ½ | 101821 | TT-89 | B47-1meg-S | B11-137 | TA16L | Vert. Hold |
| B | Shaft | | | Not Req. | Not Req. | Not Req. | Not Req. | |
| R4A | 300K | ½ | 109698 | TT-46 | B47-300K-S | B11-139 | TA194L | Brightness |
| B | Shaft | | | Not Req. | Not Req. | Not Req. | Not Req. | |
| R5A | 22K | ½ | 109687 | TT-38 | B47-22K-S | B11-130 | TA353L | Horiz. Hold |
| B | Shaft | | | Not Req. | Not Req. | TM4 | Not Req. | |
| R6 | 5000Ω | 2(WW) | 109309 | | | | PFL-5K | AGC |
| R7 | 1200Ω | 2(WW) | 109308 | | | | PFL-1K | Vert. Linearity |
| R8A | 7.5meg | 1/10 | 109697 | | | | | Height |
| B | 1.5meg | 1/10 | | | | | | Sync Stability |

① Chassis KCS133A, B, F, H use Part #109690. Chassis KCS133E uses Part #109846. Chassis KCS133K uses Part #109786.
② Chassis KCS133A, B, F, H, K use Part #109692.

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise stated.

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R9 | 5100Ω 5W | PW5-5100 | 5W-SQ-5100 | Note 1 |
| R10 | 15K | | | |
| R11 | 2700Ω | | | |
| R12 | 1000Ω | | | |
| R13 | 22K | | | 330K * |
| R14 | 56Ω | | | |
| R15 | 4700Ω | | | |
| R16 | 12Ω | | | |
| R17 | 4700Ω | | | |
| R18 | 470Ω | | | |
| R19 | 3300Ω | | | |
| R20 | 680Ω | | | |
| R21 | 150K | | | |
| R22 | 330Ω | | | |
| R23 | 7500Ω 7W | PW10-7500 | 10G-7500 | |
| R24 | 56K | | | |
| R25 | 150K | | | |
| R26 | 56K | | | |
| R27 | 68K | | | |
| R28 | 15Ω | | | |
| R29 | 18K 2W | | | |
| R30 | 3900Ω | | | |
| R31 | 1800Ω | | | |
| R32 | 1meg | | | |
| R33 | 180K | | | Note 3 |
| R34 | 180K | | | |
| R35 | 27K | | | |
| R36 | 560K | | | |
| R37 | 1.5meg | | | |
| R38 | 3.9meg | | | |
| R39 | 100K | | | |
| R40 | 47K 2W | | | |
| R41 | 560K | | | |
| R42 | 33K 2W | PW5-3300 | 5G-3300 | |
| R43 | 470K | | | |
| R44 | 2200Ω 4W | PW5-2200 | 5W-SQ-2200 | |
| R45 | 4.7MΩ | | | |
| R46 | 220K 1W | | | #104295 |
| R47 | 1meg | | | |
| R48 | 1.5meg | | | Note 2 |
| R49 | 180K | | | |
| R50 | 10meg | | | #107191 |
| R51 | 6.8meg | | | |
| R52 | 15K 4W | PW5-15K | 5G-15K | |
| R53 | 39000Ω 1W | | | Note 3 |
| R54 | 620Ω | | | Note 4 |
| R55 | 470K | | | Note 4 |

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R56 | 8.2meg | | | |
| R57 | 27K | | | |
| R58 | 22K | | | |
| R59 | 82K | | | |
| R60 | 39K | | | |
| R61 | 220K | | | |
| R62 | 2.2meg | | | |
| R63 | 2700Ω | | | |
| R64 | 10meg | | | |
| R65 | 1.8meg | | | |
| R66 | 680K | | | |
| R67 | 1meg | | | |
| R68 | 2000Ω | | | |
| R69 | 22K | | | |
| R70 | 100K | | | |
| R71 | 270Ω 4W | PW5-270 | 4G-270 | |
| R72 | 3300Ω | | | |
| R73 | 150Ω | | | |
| R74 | 150Ω | | | |
| R75 | 3.5Ω (Cold) | | | Pt.#107464 |
| R76 | 68K | | | |
| R77 | 33K | | | |
| R78 | 390K | | | |
| R79 | 390K | | | |
| R80 | 150K | | | Note 3 |
| R81 | 100K | | | |
| R82 | 560K | | | |
| R83 | 120K | | | |
| R84 | 2200Ω | | | |
| R85 | 75K | | | |
| R86 | 47K | | | |
| R87 | 47Ω | | | |
| R88 | 470K | | | |
| R89 | 9200Ω 3W | PW5-9200 | 5G-9200 | |
| R90 | 150K | | | |
| R91 | 4700Ω | | | |
| R92 | 1.2Ω | | | |
| R93 | 8Ω † ** | | | |
| R94 | 4700Ω 2W | | | |
| R95 | 1800Ω 3W | PW5-1800 | 5W-SQ-1800 | |
| R96 | 2.2meg | | | |
| R97 | 1200 (Cold) | | | #107191 |
| R98 | 27K | | | |
| R99 | 680K | | | |
| R100 | 100K | | | Note 3 |
| R101 | 120K | | | Note 4 |
| R102 | 150K | | | Note 4 |

Note 1. Used with VHF Tuner KRK102H only. Note 3. May not be used in some versions.
Note 2. 1meg used in Chassis KCS133A, B, F, K. Note 4. Used in Chassis KCS133C only.
† Fusible Type * Alternate Value # RCA Victor Part Number

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | RCA Victor PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K1 | Video IF Network | 1000mmf, 820Ω, 820Ω, 15K, 150K, 150K | 109653 | |
| K2 | 3rd Video IF Cathode | 4700mmf, 150Ω | 109330 | Centralab RC-485 |

## COMPONENT COMBINATIONS (cont)

| ITEM No. | USE | DESCRIPTION | RCA Victor PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K3 | Sound IF Coil | 56mmf, 47K | 104329 | Centralab RC-421<br>Sprague PRC-1 |
| K4 | Sound IF Cathode | 10000mmf, 82Ω | 107278 | Centralab PC-382 |
| K5 | Audio Detector Cath. | 10000mmf, 560Ω | 109313 | |
| K6 | Vert. Integrator | 3000mmf, 90K | 109326 | Centralab PC-407<br>Sprague V-18 |
| K7 | Vert. Feedback | 2400mmf, 68K | 109325 | Centralab PC-408<br>Sprague V-14 |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA RCA Victor PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| L1A | 47.25MC Trap | 109322 | | | | | ①Part #109758 used in Chassis KCS133K |
| B | 39.25MC Trap | | | | | | ②Part #109763 used in Chassis KCS133K |
| L2A | 1st Video IF | 109323 | | | | | ③ Wound on 4700Ω Resistor. |
| B | 41.25MC Trap | | | | | | ④ Includes 39mmf Capacitor. |
| L3 | 2nd Video IF | 109071 | | | | | ⑤ Includes 2 12mmf Capacitors. |
| L4 | 3rd Video IF | 109358 | | | | | ⑥ Includes 10mmf Cap., 120K Resistor. |
| L5 | 4th Video IF | 109321 | | | | | |
| L6 | Peaking (39uh) | 101819 ① | TV-180 | 6176 | RTC-8593 | T301 | *Parallel with 4700Ω Resistor. |
| L7 | Peaking (250uh) | 101287 | TV-185 | 6181 | RTC-8598 | T315 | |
| L8 | RF Choke (5.5uh) | 109171 | BC-565 | 4609 | RTC-8519 | T959 | |
| L9 | 4.5MC Trap | 104903 | | | | | |
| L10 | Peaking (750uh) | 107199 ② | TV-207 | 6156 | RTC-8598 | T357 | |
| L11 | Peaking (250uh) | 109298 ③ | TV-185 * | 6181 * | RTC-8598 * | T315 * | |
| L12 | 1st Sound IF | 104136 ④ | | | | | |
| L13 | 2nd Sound IF | 107201 ⑤ | | | | | |
| L14 | Quadrature | 108795 ⑥ | | | | | |
| L15 | RF Choke (82uh) | 107385 | BC-566 | 4611 | RTC-8521 | T960 | |
| L16 | RF Choke (82uh) | 107385 | BC-566 | 4611 | RTC-8521 | T960 | |
| L17 | Fil. Choke (1uh) | 73477 | BC-561 | 4603 | RTC-8515 | T955 | |
| L18 | Fil. Choke (1uh) | 73477 | BC-561 | 4603 | RTC-8515 | T955 | |

## COILS (SWEEP CIRCUITS)

| ITEM No. | USE | REPLACEMENT DATA RCA Victor PART No. | Merit PART No. | Miller PART No. | Rogers PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | Workman TV PART No. |
|---|---|---|---|---|---|---|---|---|---|
| L19A | Horiz. Osc. | 109318 | | | | | | | |
| B | Horiz. Stabilizing | | | | | | | | |
| L20 | Width Coil | 105622 | MWC-6 | 6322 | QRC-109 | WC-8 | WC-22 | WLC-6 | T107 |

## FILTER CHOKE

| ITEM No. | RATINGS CURRENT (Measured) | DC RES. | INDUCTANCE @ CURRENT 1000 ^_\| | REPLACEMENT DATA RCA Victor PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| L21 | .300A | 35Ω | .9 Hy. | 100286 | C-2966 ① | C-2343 | 26C44 ① | C-34X | ① Drill new mounting hole(s). |

## TRANSFORMER (POWER)

| ITEM No. | RATING PRI. | SEC. 1 | SEC. 2 | REPLACEMENT DATA RCA Victor PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 117V ⑨<br>1.65A | 110V ⑨<br>.9A AC | 6.3V ⑨ 11A | 109069 | P-6082 | | | | |

## TRANSFORMERS (SWEEP CIRCUITS)

| ITEM No. | USE | REPLACEMENT DATA RCA Victor PART No. | Merit PART No. | Rogers PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T2 | Vert. Output | 109685 | | PCM-2017 ①②③ | VO-101 | 26S14 | A-140X | |
| T3 | Yoke (Horiz. 15MH)<br>114° (Vert. 14.4MH) | 109695 | | | DY-27A ①② | Y-48 ①② | Y-60-1 ④ | |
| | Rear Cover and Centering Device | 107192 | | | | | | |
| | Yoke Clamp | 104409 | | | | | | |
| T4 | Horiz. Output | 108696 | HVO-116 | | HO-289 | FLY-150 | D-200 | |

① Use original rear cover and centering device.
② Remove 4700Ω Resistor and (two) 100mmf capacitors across yoke Terminals (#2 & #6) and yoke Terminals (#7 & #6).
③ Use original damping network if necessary.
④ Remove 470Ω Resistor across vertical windings.

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE PRI. | SEC. | REPLACEMENT DATA RCA Victor PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T5 | 7900Ω | 3-4Ω | 109067 | A-3020 | A-3956 | 26S48 | S-48Z | |

## SPEAKER

| ITEM No. | TYPE SIZE | FIELD | V. C. IMP. | REPLACEMENT DATA RCA Victor PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 3" x 5" | PM | 3-4Ω | 107262 ① | 36A08 | ① Used in All Models. |
| SP2 | 3½" | PM | 6-8Ω | 102119 ② | 3A15T29 | ② Used in Models 19LAE20258 & 9, 19LAER204, 19LR194, 19LAWR204 |

## POWER RECTIFIERS

| ITEM No. | RATING CURRENT (Measured) | REPLACEMENT DATA RCA Victor PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| M1 | .300A | 106379 | 1N1763 | 40H | SR500 | |
| M2 | .300A | 106379 | 1N1763 | 40H | SR500 | |

## FUSES

| ITEM No. | TYPE | RATING | REPLACEMENT DATA RCA Victor PART No. FUSE | HOLDER | LITTELFUSE PART No. FUSE | HOLDER | BUSS PART No. FUSE | HOLDER |
|---|---|---|---|---|---|---|---|---|
| M3 | | 1½" length of #28 wire | | | | | | |
| M4 | | 1½" length of #28 wire | | | | | | |

## SIGNAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA RCA Victor PART No. | GENERAL ELECTRIC PART No. | RAYTHEON PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| M5 | | 1N23B * | 6GC1 * | | | *Dual Selenium, Common Cathode |
| M6 | | 76675B * | | 1N295 * | 1N295 * | *Crystal Diode, Video Det., Pigtail |

## MISCELLANEOUS

| ITEM No. | PART NAME | RCA Victor PART No. | NOTES |
|---|---|---|---|
| M7 | Tuner (KRK102H) | 109753 | VHF, Ch. KCS33C, E |
| | Tuner (KRK58E) ▲ | | VHF, Ch. KCS33F (▲ Use KRK99E as Replacement) |
| | Tuner (KRK98N) * | | VHF, Ch. KCS33A, K (* Use KRK97N as Replacement) |
| | Tuner (KRK97N) | 109639 | VHF with UHF Provisions, Ch. KCS33B |
| | Tuner (KRK99E) | 109724 | VHF with UHF Provisions, Ch. KCS33E |
| | Tuner (KRK86AH) | 106499 | UHF, Ch. KCS33B, H |
| M8 | Antenna | 109139 | UFD REPLACEMENT, Type TA398 |
| | Printed Board | 109698 | Pix & IF Sound Strip, Less Tubes, Ch. KCS33A, B, F, H, K |
| | Printed Board | 109699 | Pix & IF Sound Strip, Less Tubes, Ch. KCS33C |
| | Printed Board | 109700 | Deflection Strip, Less Tubes, Ch. KCS33A, B, K |
| | Printed Board | 109701 | Deflection Strip, Less Tubes, Ch. KCS33C, F, H |
| | | | POWER TUNING |
| M9 | Switch | 109217 | Master Off-On |
| M10 | Switch | 109706 | Channel Selector |
| M11 | Switch | 109702 | Motor Off-On |
| M12 | Motor | 109419 | Motor Off-On |

## CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

| DESCRIPTION | PART NO. | MODEL NO. 19LA192 | 19LA192U | 19LA194 | 19LA194U | 19LAE02 | 19LAE02U | 19LAE05 | 19LAE05U | 19LAE08 | 19LAE09 | 19LAE09U | 19LAER204 | 19LS-194 | H-19LAWR204 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Safety Glass | 109662 | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Mask | 109665 | X | | | | | | | | | | | | | |
| Mask | 109666 | | X | | | | | | | | | | | | |
| Mask | 109663 | | | X | | | | | | | | | | | |
| Mask | 109664 | | | | X | | | | | | | | | | |
| Mask | 109665 | | | | | X | | | | | | | | | |
| Mask | 109666 | | | | | | X | | | | | | | | |
| Mask | 109667 | | | | | | | X | | | | | | | |
| Mask | 109668 | | | | | | | | X | | | | | | |
| Mask | 109669 | | | | | | | | | X | | | | | |
| Mask | 109670 | | | | | | | | | | X | | | | |
| Mask | 109671 | | | | | | | | | | | X | | | |
| Mask | 109672 | | | | | | | | | | | | X | | |
| Mask | 109673 | | | | | | | | | | | | | X | |
| Mask | 109789 | | | | | | | | | | | | | | X X |
| Knob-VHF Channel Selector | 109661 | X | X | X | X | X | X | X | X | X | X | X | X | X | |
| Knob- " | 109658 | | | | | | | | | | | | X | | X |
| Knob-UHF Channel Selector | 109128 | | X | | X | | X | | X | | X | | X | | |
| Knob-UHF Channel Indicator | 109131 | | X | | X | | X | | X | | X | | X | | |
| Knob-Fine Tuning | 109130 | X | X | X | X | X | X | X | X | X | X | X | | X | |
| Knob- " | 109518 | | | | | | | | | | | | X | | X |
| Knob-Contrast, Volume | 109130 | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Handle-Carrying | 107691 | X | X | X | X | | | | | | | | | | |

## WIRING DATA

| | |
|---|---|
| High Voltage Lead | Use BELDEN No. 8869 |
| Shielded Hook-up Wire | Use BELDEN No. 8885 (Single Conductor)<br>8738 (Two Conductor) |
| General-use Unshielded Hook-up Wire | Use BELDEN No. 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord (Interlock Type) | Use BELDEN No. 8874 |
| 300Ω Tuner Input Lead | Use BELDEN No. 8225 |
| 300Ω Antenna Lead-in | Use BELDEN No. 8230 or 8275 |
| Antenna Rotor Cable | Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor<br>8485 (Round) - 5 Conductor<br>8486 (Round) - 8 Conductor |

RCA VICTOR CHASSIS KCS133A, B, C, E, F, H, K, KRS24C, KRTIB, KT2A

FOLDER 1

# REMOTE CONTROL RECEIVER
# PARTS LIST AND DESCRIPTIONS
## KRS24C

### TUBES

| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
|---|---|---|---|---|---|
| V16 | 1st 40KC Amplifier | 6AU6A (6AU6) * | V19 | Channel Select - Volume Relay Control Amplifier | 6CM7 |
| V17 | 2nd & 3rd 40KC Amplifier | 12AX7 | | | |
| V18 | 40KC Driver - 40.75KC Rect. - 43.25KC Rect. | 6BN8 | | | |

* Alternate

### ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | RCA Victor PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
| C74 | 100 | 25 | | PRS1270 | BBR100-25 | TC2501 | TD-100-25 | TVA-1207 | ① |

① Some versions use 50mfd ② 25V (Part #94667).

### FIXED CAPACITORS
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C75 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C76 | 330 | | BPD-00033 | DD-331 | L10T33 | CCD-331 | B-333 | 10TS-T33 |
| C77 | 150 | | DI-150 | DD-151 | L10T15 | CCD-151 | GP315 | 10TS-T15 |
| C78 | 120 N220 | #105245 | | | | * | | 10TCR-T12 |
| C79 | 120 N220 | #105245 | | | | * | | 10TCR-T12 |
| C80 | .47 200V | | P288N-47 | | CUB2P47 | 2DP-5-474 | GEM-2047 | 2TM-P47 |
| C81 | .22 400V | | P488N-22 | | CUB4P22 | 4DP-5-224 | GEM-4022 | 4TM-P22 |
| C82 | 120 N220 | #105245 | | | | * | | 10TCR-T12 |
| C83 | .1 200V | | P288N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C84 | .047 200V 10% | | V84C2S47-10% | | PM2S47 | 4DP-3-473 | GEM-1615 | 2TM-S47 |
| C85 | 680 10% | | 1469-00068 | | 5R5T68 | CM-19B-681K | MCJ249 | MS-368 |
| C86 | .01 200V | | P288N-01 | D6-103 | CUB4S1 | 4DP-1-103 | GEM-211 | 4TM-S10 |
| C87 | .01 400V | | P488N-01 | D6-103 | CUB4S1 | 4DP-1-103 | GEM-411 | 4TM-S10 |
| C88 | .022 600V 10% | (.015) † | V84C6S22-10% | | PM6S22 | 6DP-2-223 | GEM-1612 | 6TM-S22 |
| C89 | .01 400V | | P488N-01 | D6-103 | CUB4S1 | 4DP-1-103 | GEM-411 | 4TM-S10 |
| C90 | .033 200V 10% | | V84C2S33-10% | | PM6S33 | 4DP-2-333 | GEM-1613 | 6TM-S33 |
| C91 | 680 10% | | 1469-00068 | | 5R5T68 | CM-19B-681K | MCJ249 | MS-368 |
| C92 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C93 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |

# RCA Victor Part Number. † Alternate Value.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

### RESISTORS
All wattages 1/2 watt, or less, unless otherwise listed.

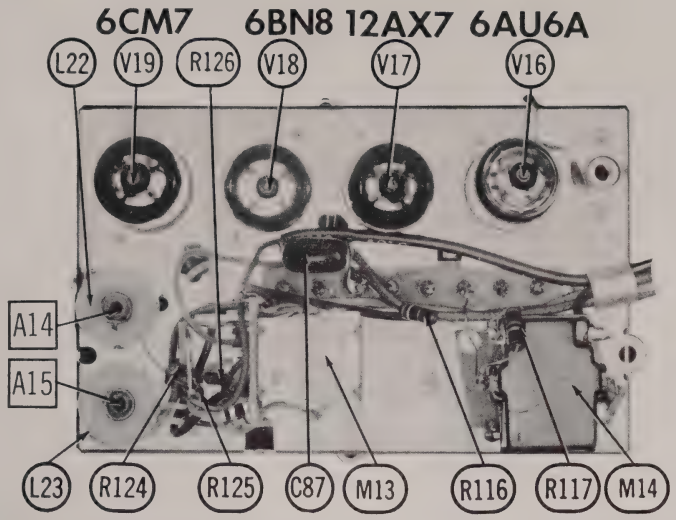
| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R103 | 100K | | | | R115 | 1meg | | | |
| R104 | 150K | | | | R116 | 3.9meg | | | |
| R105 | 470K | | | | R117 | 10meg | | | |
| R106 | 100K | | | | R118 | 2.2meg | | | |
| R107 | 100K | | | | R119 | 1meg | | | |
| R108 | 100K | | | | R120 | 12K | | | |
| R109 | 100K | | | | R121 | 2200Ω 1W | | | |
| R110 | 100K | | | | R122 | 1meg | | | |
| R111 | 270K | | | | R123 | 1meg | | | |
| R112 | 2.2meg | | | | R124 | 2200Ω | | | |
| R113 | 39K 1W | | | | R125 | 5600Ω | | | |
| R114 | 2.2meg | | | | R126 | 18K | | | |

### COILS (RF-IF)

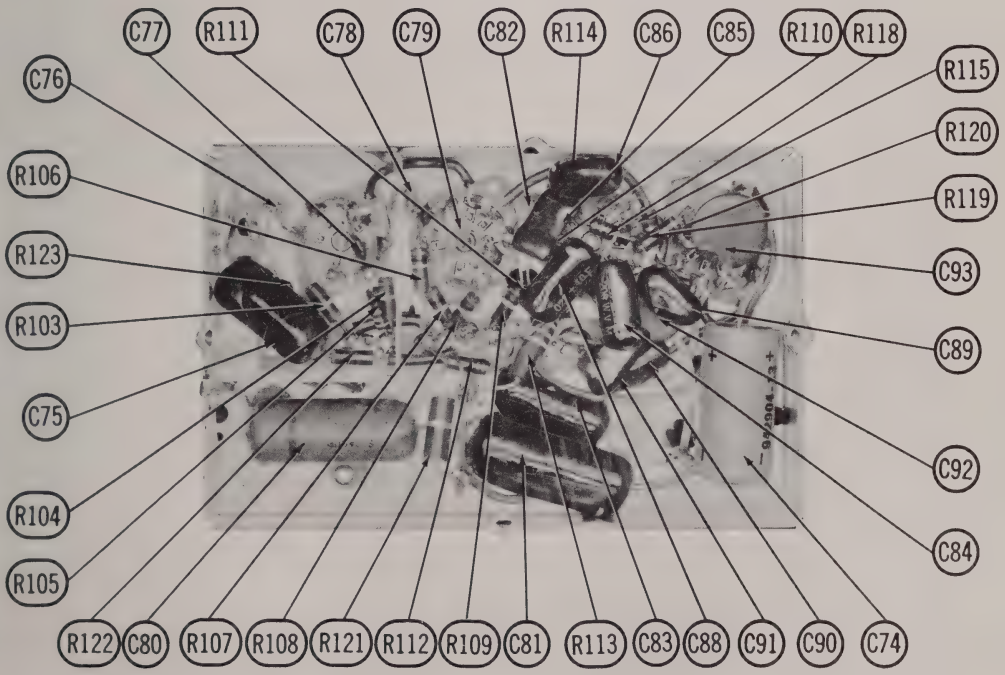
| ITEM No. | USE | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | | RCA Victor PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | |
| L22 | 40.75KC | 107539 | | | | | |
| L23 | 43.25KC | 107539 | | | | | |

### MISCELLANEOUS

| ITEM No. | PART NAME | RCA Victor PART No. | NOTES |
|---|---|---|---|
| M13 | Relay | 107405 | Channel Selector |
| M14 | Relay | 109124 | Volume Control |
| M15 | Microphone | 107850 | Transducer Receiver |




REMOTE CONTROL RECEIVER KRS24C — TOP VIEW




REMOTE CONTROL RECEIVER KRS24C — BOTTOM VIEW

# TUNER ALIGNMENT INSTRUCTIONS

## KRK98E, 99E

PRE-ALIGNMENT INSTRUCTIONS FOR TUNER #KRK98 AND KRK99

Allow a 20 minute warm-up period for the receiver and test equipment.

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Connect the negative lead of a 2.5 volt bias supply to point (T). Positive to chassis.

| | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1. | Across VHF Antenna Terminals thru pad (Fig. 201). | 195MC | 193.25MC<br>197.75MC | 10 | Vert. Amp. to point (U). Low side to chassis. | A201, A202 | Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown. If oscillation is obtained and distorts the waveform, adjust A203 for MINIMUM gain and repeat adjustments of A201 and A202. |
| 2. | " | " | | " | " | A203 | Increase bias to -10 to -15 volts. Adjust A203 for MINIMUM response. |
| 3. | " | 207MC | 205.25MC<br>209.75MC | 12 | " | A204 | Return bias to 2.5volts. Adjust A204 for maximum gain at center of curve. |
| 4. | " | " | " | " | " | A201, A202, A205 | Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown. Adjust A201 for correct freq. Adjust A202 for correct tilt. Position A205 for bandwidth. |
| 5. | " | 195MC | 193.25MC<br>197.75MC | 10 | " | A206, A207 | Adjust for flat response. |
| 6. | " | 189MC | 187.25MC<br>191.75MC | 9 | " | A208, A209 | " |
| 7. | " | 183MC | 181.25MC<br>185.75MC | 8 | " | A210, A211 | " |
| 8. | " | 177MC | 175.25MC<br>179.75MC | 7 | " | A212, A213 | " |
| 9. | " | 85MC | 83.25MC<br>87.75MC | 6 | " | A214, A215, A216, A217 | Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown. Adjust A214 for amplitude, A215 for frequency, A216 for proper tilt and A217 for bandwidth. |
| 10. | Turn off generator. | | | 12 | Use VTVM DC probe to point (V). Common to chassis. | | Check Oscillator injection voltage. It should be between -2.0 to -5.0 volts. |

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect the negative lead of a 2.5 volt bias supply to point (T). Positive to chassis.

| | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 11. | Across VHF Antenna Terminals thru pad (Fig. 201). | Not Used | 257MC | 13 | Vert. Amp. to point (U). Low side to chassis. | A218 | Adjust for zero beat. |
| 12. | " | " | 251MC | 12 | " | A219 | " |
| 13. | " | " | 245MC | 11 | " | A220 | " |
| 14. | " | " | 239MC | 10 | " | A221 | " |
| 15. | " | " | 233MC | 9 | " | A222 | " |
| 16. | " | " | 227MC | 8 | " | A223 | " |
| 17. | " | " | 221MC | 7 | " | A224 | " |
| 18. | " | " | 129MC | 6 | " | A225 | " |
| 19. | " | " | 123MC | 5 | " | A226 | " |
| 20. | " | " | 113MC | 4 | " | A227 | " |
| 21. | " | " | 107MC | 3 | " | A228 | " |
| 22. | " | " | 101MC | 2 | " | A229 | " |

# TUNER ALIGNMENT INSTRUCTIONS (cont)

UHF IF ALIGNMENT

## KRK98E, 99E

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Connect the negative lead of a 2.5 volt bias supply to point ⓓ. Positive to chassis.
Connect a 180Ω resistor across input cable of scope.

| | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 23. | High side thru input lead (Fig. 203) to point ⓦ. Low side to chassis. | 45MC (10MC Swp.) | 41.25MC 45.75MC | UHF Any | Vert. Amp. thru 330mmf to plate of Mixer. Low side to chassis. | A230, A231 | Adjust for maximum gain and symmetry of response similar to Fig. 204 with markers as shown. |
| 24. | Across UHF Antenna Terminals. | To center freq. on channel to be received. (See Chart, Page 13) | " | Channel to be received. | Across Video Det. Load. | " | Retouch for response similar to Fig. 205 |

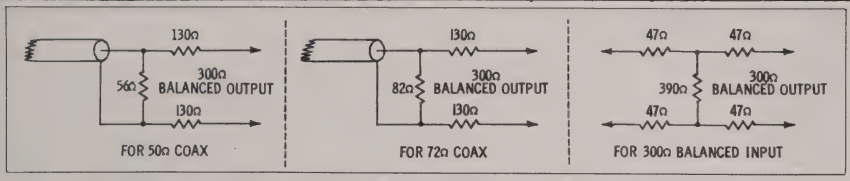



FIG.201

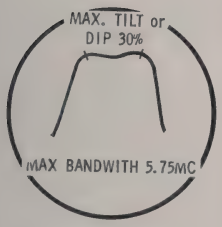



FIG.202

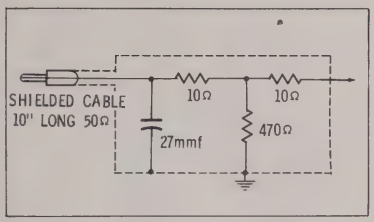



FIG.203

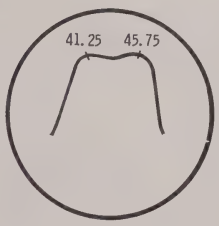



FIG.204

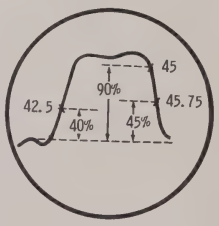
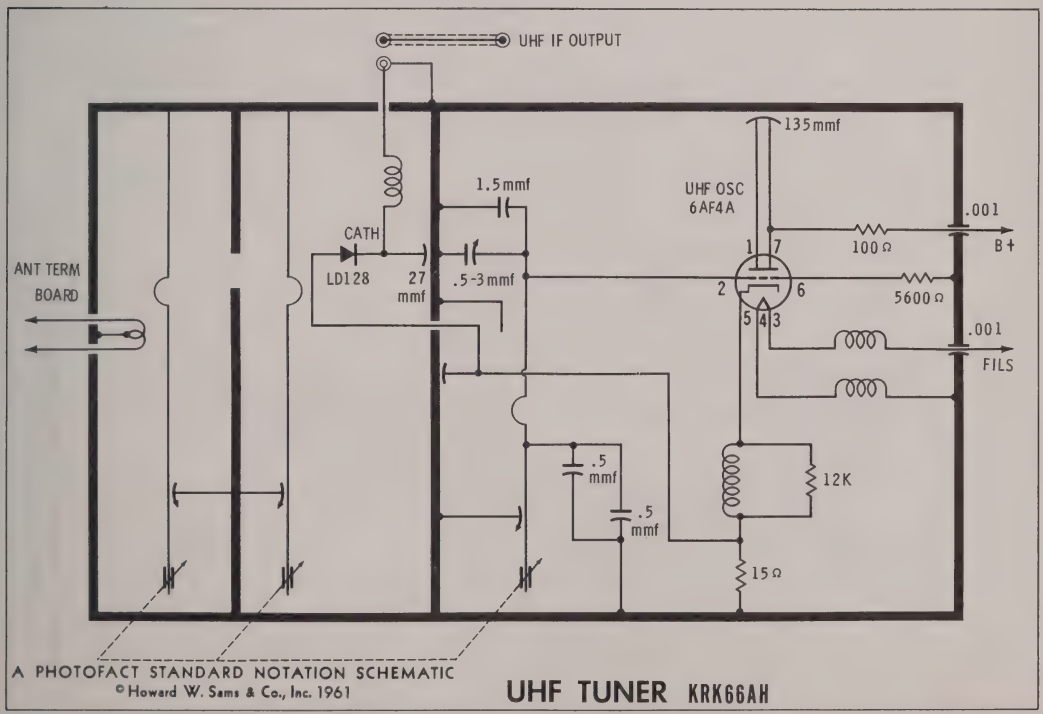



FIG.205




A PHOTOFACT STANDARD NOTATION SCHEMATIC

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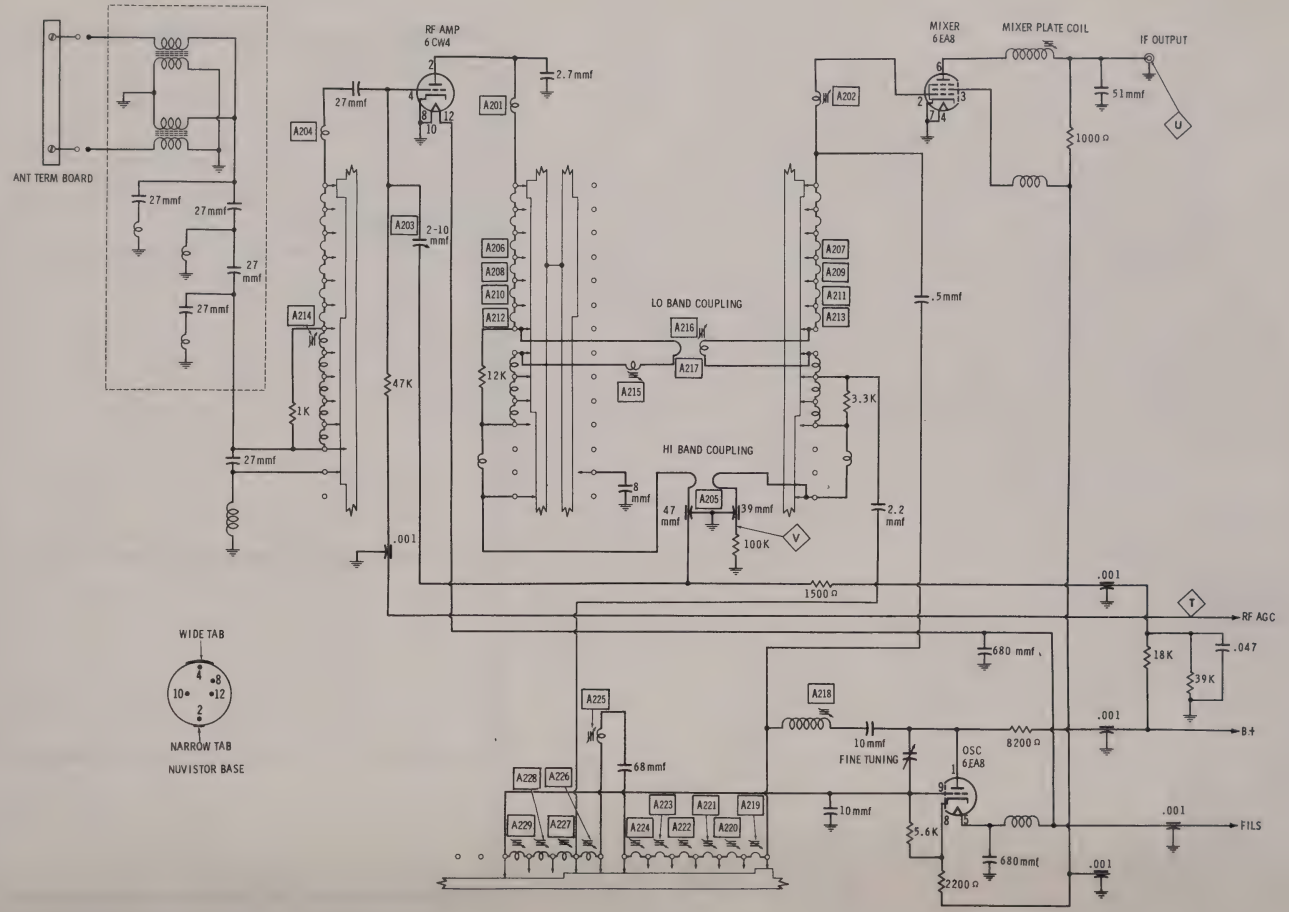
UHF TUNER KRK66AH

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# VHF TUNER KRK98E

# VHF TUNER WITH UHF PROVISIONS KRK99E

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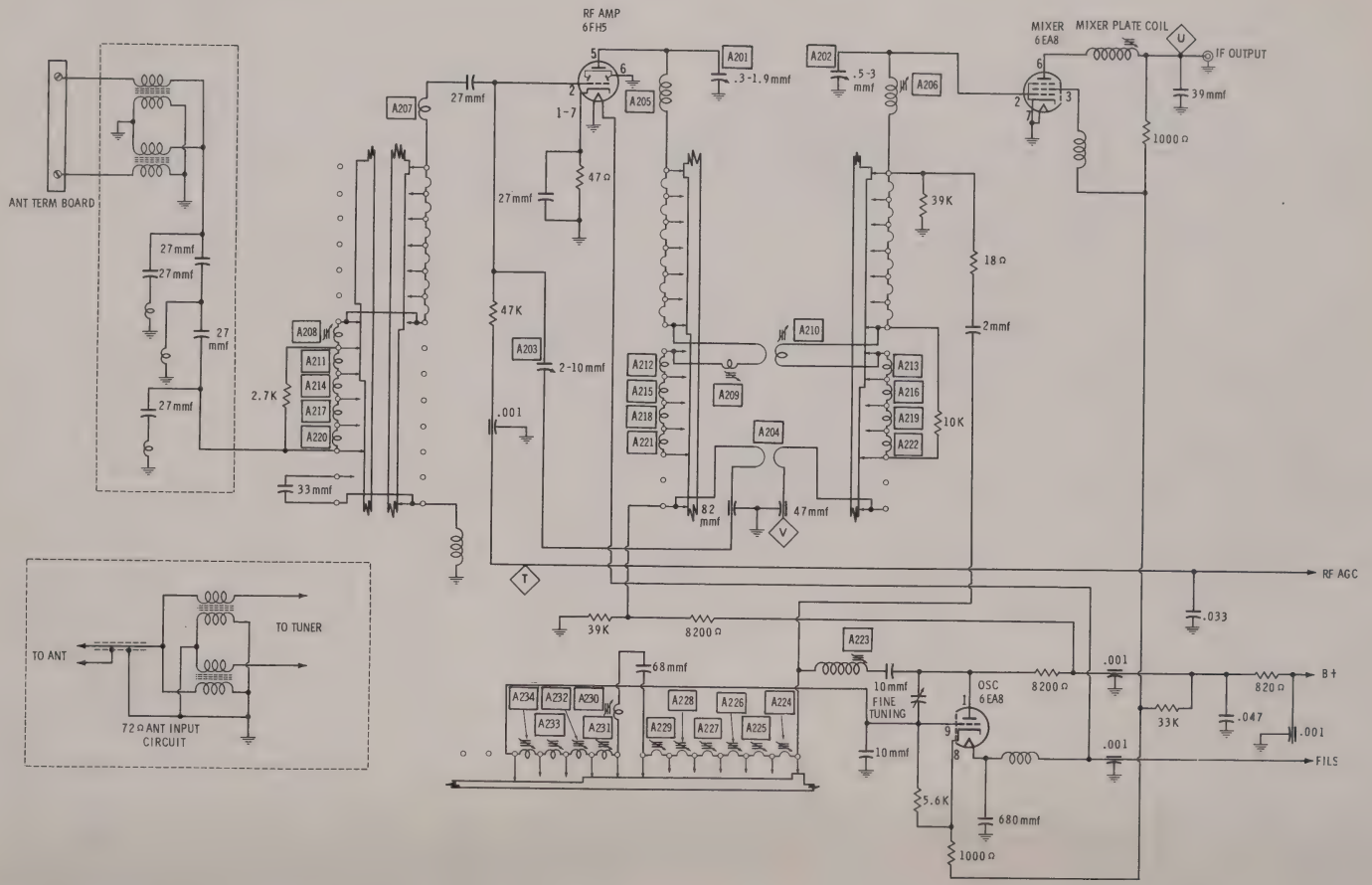


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# VHF TUNER KRK96N

# VHF TUNER PARTS LIST AND DESCRIPTIONS

## KRK102H

### TUBES

| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
|---|---|---|---|---|---|
| | • GENERAL ELECTRIC • | | • RAYTHEON • | SYLVANIA • | |
| V201 | RF Amp. | 6CW4 | V202 | Mixer - Osc. | 6CG8A |

### FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C201 | 27 N750 10% | | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| C202 | 27 N750 10% | | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| C203 | 27 N750 10% | | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| C204 | 27 N750 10% | | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| C205 | 30 7.5% | #107876 | | | | | | |
| C206 | 27 N750 10% | (20) † | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| C207 | 1000 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C208 | 1.8-7 | | | 829-7 | | | | |
| C209 | 47 | #109617 | | | | | | |
| C210 | 1000 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C211 | 1.8-7 | #109598 | | 829-7 | | | | |
| C212 | 33 5% | | | DTZ-33 | C10Q33C | CCTO-330 | CNO-433 | 10TCC-Q33 |
| C213 | .5-3 | | | 829-3 | | CV-1 | CT565 | |
| C214 | 40 | #107881 | | | | | | |
| C215 | .75 10% | #109425 | | | | | | |
| C216 | 39 N750 5% | | | DTN-39 | C10Q39U | | CN7-439 | 10TCU-Q39 |
| C217 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C218 | 7.25 N80 | #109424 | | | | | | |
| C219 | 18 N220 10% | #107884 | | | | * | | 10TCR-Q18 |
| C220 | .047 600V | | P688N-047 | DD-503 | CUB6847 | 6DP-3-473 | GEM-6147 | 6TM-S47 |
| C221 | 1000 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C222 | .1 200V | (.033) † | P288N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |

# RCA Victor Part Number. † Alternate Value.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

### RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R201 | 10meg | | | | R206 | 220K | | | |
| R202 | 47K | | | (120K) * | R207 | 1000Ω | | | |
| R203 | 3900Ω | | | | R208 | 4700Ω | | | |
| R204 | 3900Ω | | | | R209 | 4700Ω | | | |
| R205 | 2200Ω | | | | | | | | |

* Alternate Value

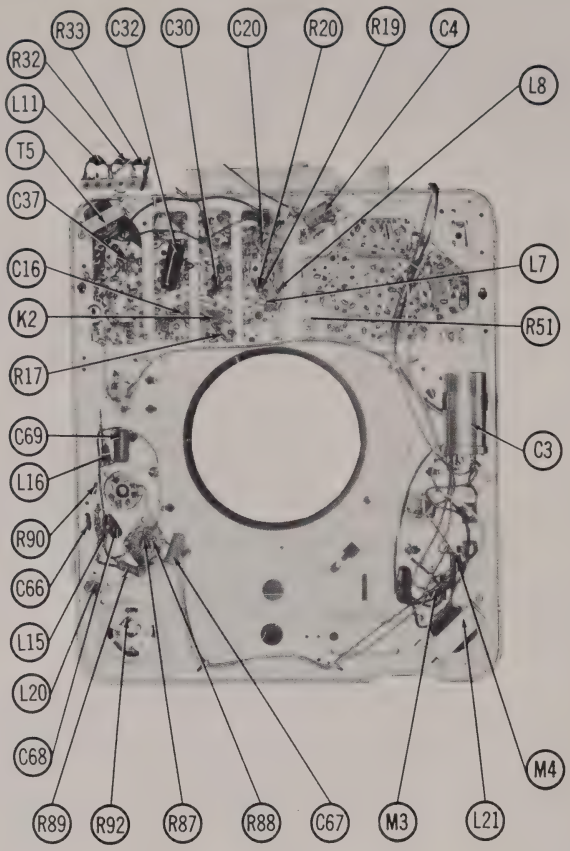
### COILS (RF-IF)

| ITEM No. | USE | RCA Victor PART No. | NOTES |
|---|---|---|---|
| L201 | Ant. Trans. | 109615 | |
| L202A | Ant., RF, Mixer & Osc. | 109599 | Channel 2 |
| B | " | 109600 | Channel 3 |
| C | " | 109601 | Channel 4 |
| D | " | 109602 | Channel 5 |
| E | " | 109603 | Channel 6 |
| F | " | 109604 | Channel 7 |
| G | " | 109605 | Channel 8 |

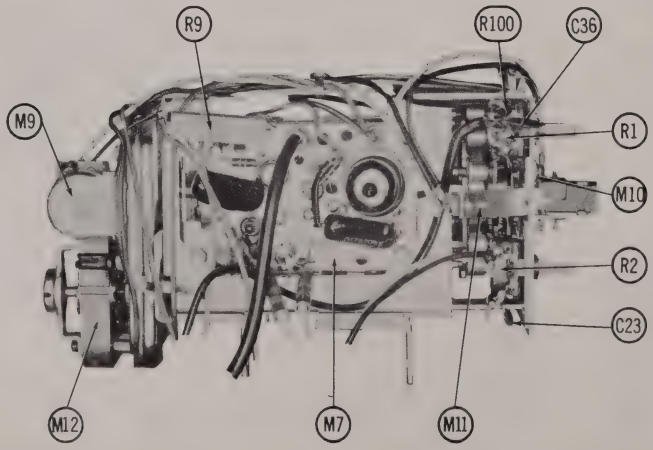
| ITEM No. | USE | RCA Victor PART No. | NOTES |
|---|---|---|---|
| L202H | Ant., RF, Mixer & Osc. | 109606 | Channel 9 |
| J | " | 109607 | Channel 10 |
| K | " | 109608 | Channel 11 |
| L | " | 109609 | Channel 12 |
| M | " | 109610 | Channel 13 |
| L203 | Mixer Plate | 109619 | |
| L204 | Fine Tuning | 107888 | Core #109754 |

### MISCELLANEOUS

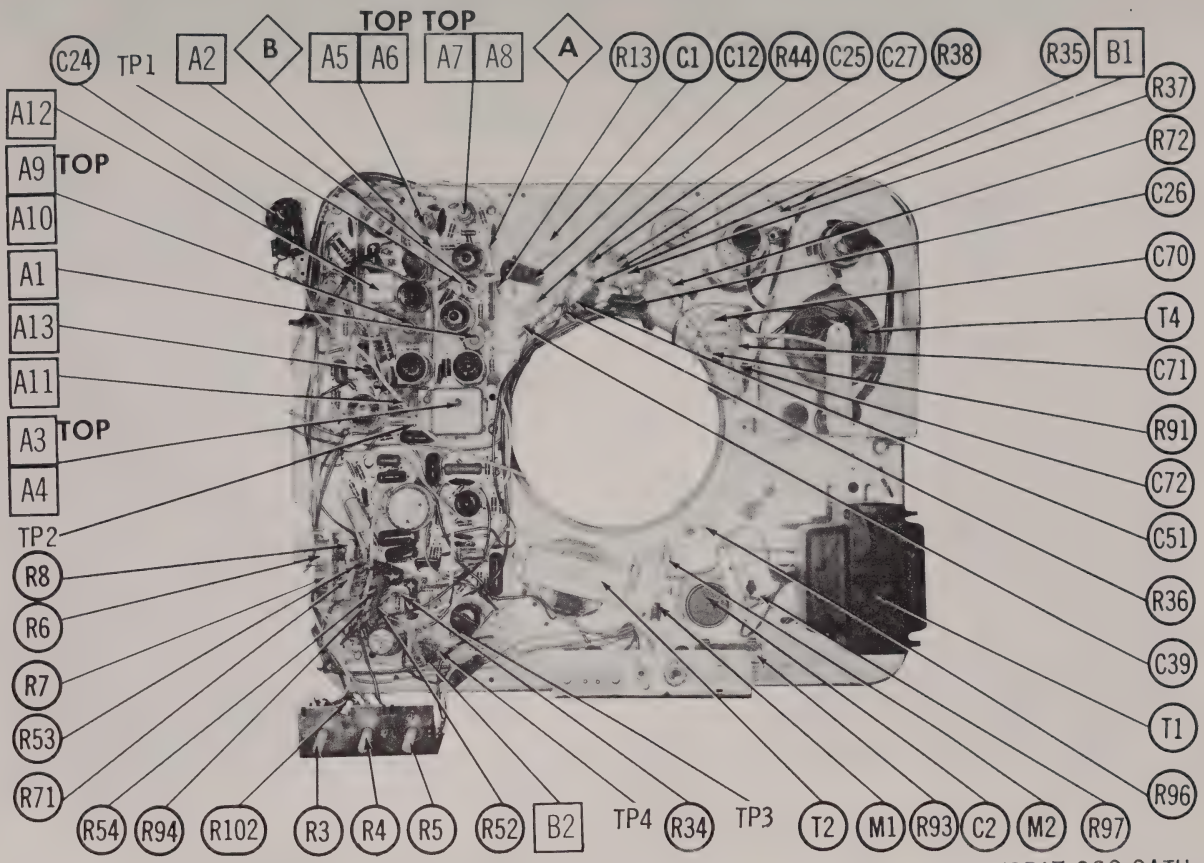
| ITEM No. | PART NAME | RCA Victor PART No. | NOTES |
|---|---|---|---|
| | Board | 109614 | Stator board and mounting bracket assembly |
| | Bracket | 107911 | Fine tuning coil mounting |
| | Cam | 109155 | Selector, Nylon |
| | Core | 107918 | Channel strip tuning |
| | Core | 109754 | Fine tuning coil and grommet |
| | Detent | 109755 | Channel Selector complete |
| | Hub | 109156 | Selector |
| | Lever | 109575 | Fine Tuning |
| | Spring | 109576 | Channel Selector detent shaft, rear, retaining |
| | Spring | 109461 | Channel Selector detent shaft, front, retaining |
| | Spring | 109574 | Fine Tuning lever tension |




TV CHASSIS - FRONT VIEW



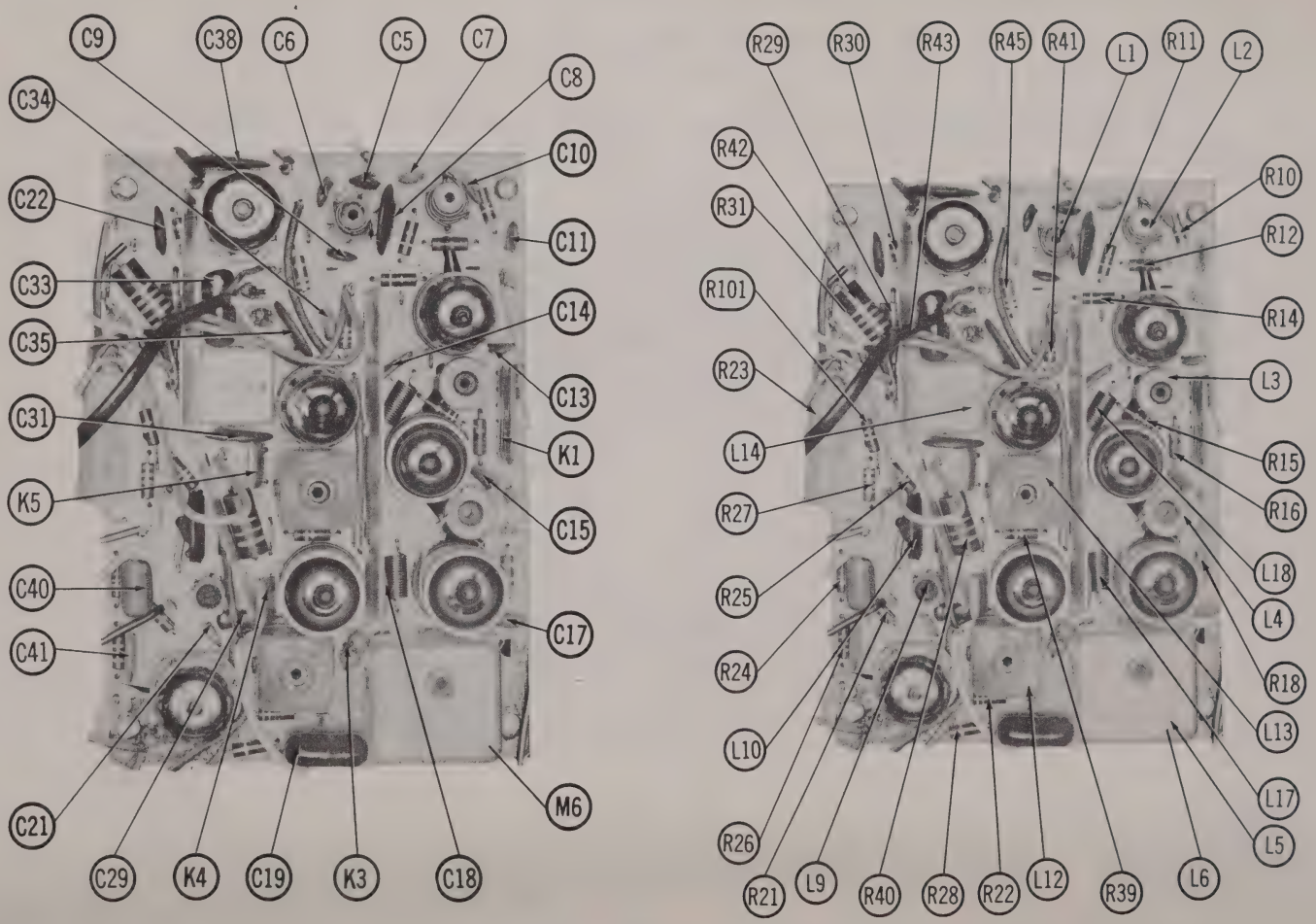

VHF TUNER - CONTROL PANEL - POWER TUNING ASSEMBLY




TP1 120V 1st IF PLATE
TP2 -1.4V VIDEO OUTPUT GRID
TP3 .15V HORIZ OSC CATH
TP4 .05V SINE WAVE T.P.

TV CHASSIS - REAR VIEW

RCA VICTOR CHASSIS KCS133A, B, C, E, F, H, K, KRS24C, KRT1B, KT2A

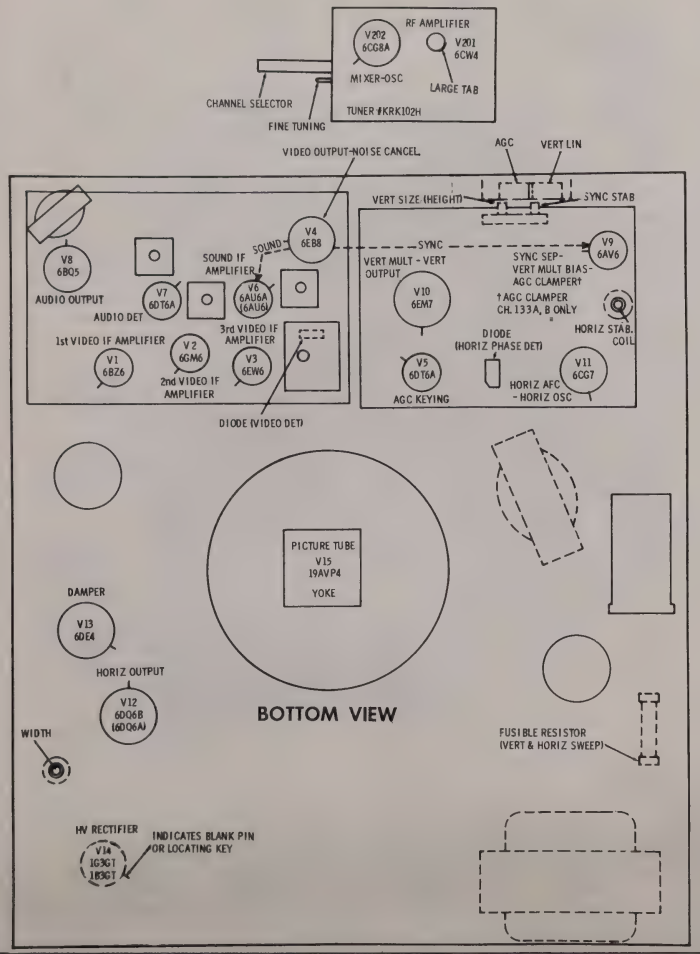



VIDEO, SOUND PRINTED BOARD

SYNC, AGC, VERT-HORIZ SWEEP PRINTED BOARD

# TUBE PLACEMENT CHART

## TV



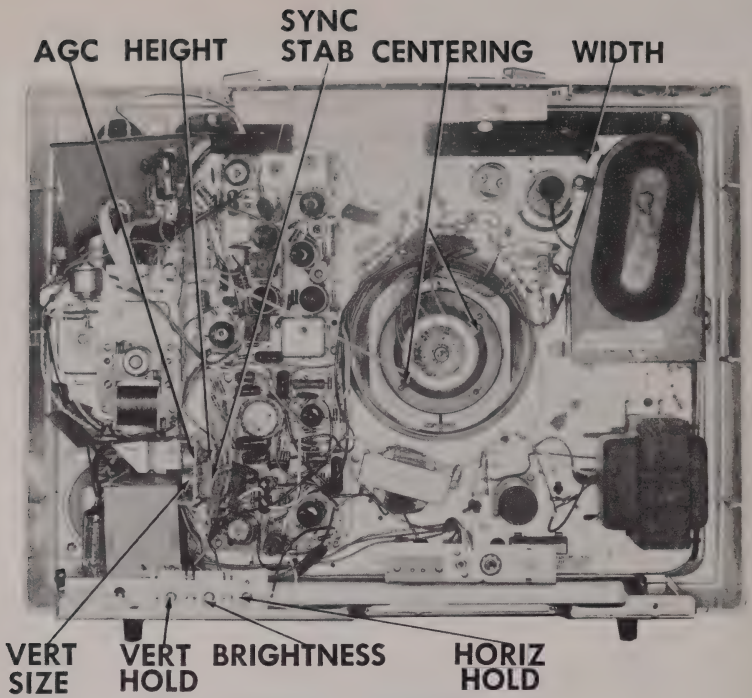

# TV

## RESISTANCE MEASUREMENTS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 6BZ6 | 1.1meg | 56Ω | FIL | FIL | †100K | †100K | 0Ω | | |
| V2 | 6GM6 | 90K | 105K | FIL | FIL | †855Ω | †855Ω | 105K | | |
| V3 | 6EW6 | .1Ω | 150Ω | FIL | FIL | †7000Ω | †7000Ω | 150Ω | | |
| V4 | 6EB8 | 680Ω | •700K | †32K | FIL | FIL | 15Ω | 4200Ω | †17K | †6000Ω |
| V5 | 6DT6A | 50K | †13K | FIL | FIL | 1.1meg | †1800Ω | †200K | | |
| V6 | 6AU6A | 47K | 0Ω | FIL | FIL | †27K | †27K | 82Ω | | |
| V7 | 6DT6A | 4.5Ω | 560Ω | FIL | FIL | †560K | †33K | 470K | | |
| V8 | 6BQ5 | NC | •1000Ω | 470Ω | FIL | FIL | NC | †2600Ω | NC | †2200Ω |
| V9 | 6AV6 | 8.7meg | 0Ω | FIL | FIL | INF | 0Ω | †40K | | |
| V10 | 6EM7 | 2.2meg | †330Ω | •600Ω | •700K | •‡3.5meg | INF | FIL | FIL | |
| V11 | 6CG7 | †35Ω | 1.1meg | 2200Ω | FIL | FIL | †80K | • 90K | 73Ω | 0Ω |
| V12 | 6DQ6B | TP | FIL | TP | †8200Ω | 1meg | TP | FIL | 0Ω | TOP CAP ‡11Ω |
| V13 | 6DE4 | NC | NC | 5meg | NC | †45Ω | NC | FIL | FIL | |
| V14 | 1G3GT 1B3GT | PINS 1 THRU 8 HAVE INFINITE RESISTANCE | | | | | | | | TOP CAP ‡580Ω |
| V15 | 19AVP4 | FIL | 25K | ‡1.9meg | 0Ω | NC | NC | • 200K | FIL | |
| V201 | 6CW4 | Pin 2 †13K | Pin 4 1.8meg | Pin 8 0Ω | Pin 10 FIL | Pin 12 FIL | | | | |
| V202 | 6CG8A | 4700Ω | †9800Ω | 0Ω | FIL | FIL | †6100Ω | †5100Ω | 0Ω | 220K |
| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |

• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM OUTPUT OF M1.
‡ MEASURED FROM PIN 3 OF V13.

NC NO CONNECTION
TP TIE POINT




CABINET—REAR VIEW

## HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the Horizontal Hold Control clockwise until the picture falls out of sync. Slowly turn the control counterclockwise and note the number of diagonal bars present just before the picture synchronizes. The picture should pull into sync with one and one half to three bars present.

Set the Brightness Control for normal brightness and adjust the Width Slug (B1) for an overscan of 3/4 inch on each side of screen with the line voltage at 117 volts.

The picture should pull into sync with one and one half to three bars present, remain in sync for approximately one quarter turn and fall out of sync with 2 to 12 bars present before interrupted oscillation (motor-boating) occurs.

Place a clip lead across the Horizontal Stabilizer Coil (L19B) and adjust the Horizontal Hold Control until the picture synchronizes horizontally. Remove the clip lead from across L19B.

Connect the vertical amplifier of the scope thru a low capacity probe to point Ⓒ. Low side to chassis. Turn the Horizontal Hold clockwise until the picture just falls out of sync, then counterclockwise until the picture just pulls into sync. The pattern on the scope should be similar to Fig. 7. Adjust Stabilizer Slug (B2) until the round and sharp peaks are the same amplitude. During this alignment, the picture must be kept in sync with the Horizontal Hold Control if necessary. Remove scope connection.

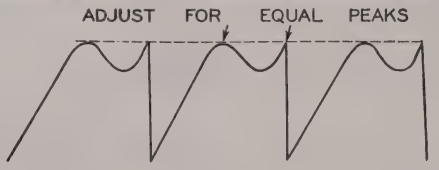



FIG. 7

## DISASSEMBLY INSTRUCTIONS

CABINET REMOVAL MODEL 191AER204

1. Remove 3 push-on type knobs and 1 touch-bar channel select knob in front.
2. Remove 7 screws holding cabinet (rear section).
3. Pull cabinet (rear section) back and disconnect antenna leads.
4. Disconnect speaker leads and mike plug.
5. Remove 4 screws at bottom of chassis (2 holding TV chassis and 2 holding remote control receiver).
6. Remove 3 screws (at bottom front) holding chassis to cabinet front (mask).
7. Remove cabinet front.

PICTURE TUBE REMOVAL

It is necessary to remove cabinet (rear section) and cabinet (front) for picture tube removal.

PHOTOFACT® Folder with CIRCUITRACE®

**TRAV-LER MODELS**
**23K6082, 23T6061 (Ch. 1158-110)**

## IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

TRAV-LER MODELS
23K6082, 23T6061 (Ch. 1158-110)

MODEL 23K6082 ( CH. 1158-110 )

TRAV-LER MODELS
23K6082, 23T6061 (Ch. 1158-110)

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TRAV-LER MODELS
23K6082, 23T6061 (Ch. 1158-110)

MODEL 23K6082 ( CHASSIS 1158-110 )

| | |
|---|---|
| TRADE NAME | Trav-Ler Models 23K6082, 23T6061 (Ch. 1158-110) |
| MANUFACTURER | Trav-Ler Radio & Tele. Corp., 571 West Jackson Blvd., Chicago 6, Illinois |
| TYPE SET | Television Receiver |
| TUBES | VHF - Seventeen |
| POWER SUPPLY | 110-120 Volts AC, 60 Cycle RATING 190 Watts, 1.7 Amp. @ 117 Volts AC |
| TUNING RANGE | Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier) |

## SERVICING IN THE FIELD

SAFETY GLASS

The safety glass is an integral part of the picture tube.

FUSE

A 7/10 Amp. fuse is used for LV Supply protection. (For location, see "Tube Placement Chart".)

A fuse wire is used for filament protection. (See M2 in photo "Lower Chassis - Bottom View" for location.)

TUNER OSCILLATOR ADJUSTMENTS

To touch up the VHF Oscillator, remove tuner and control panel.

AGC

The AGC may be varied by means of an AGC Control. (For location, see "Tube Placement Chart".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

The Horizontal Frequency Slug is used for the Horizontal Hold. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings. located behind the yoke, on the neck of the picture tube.

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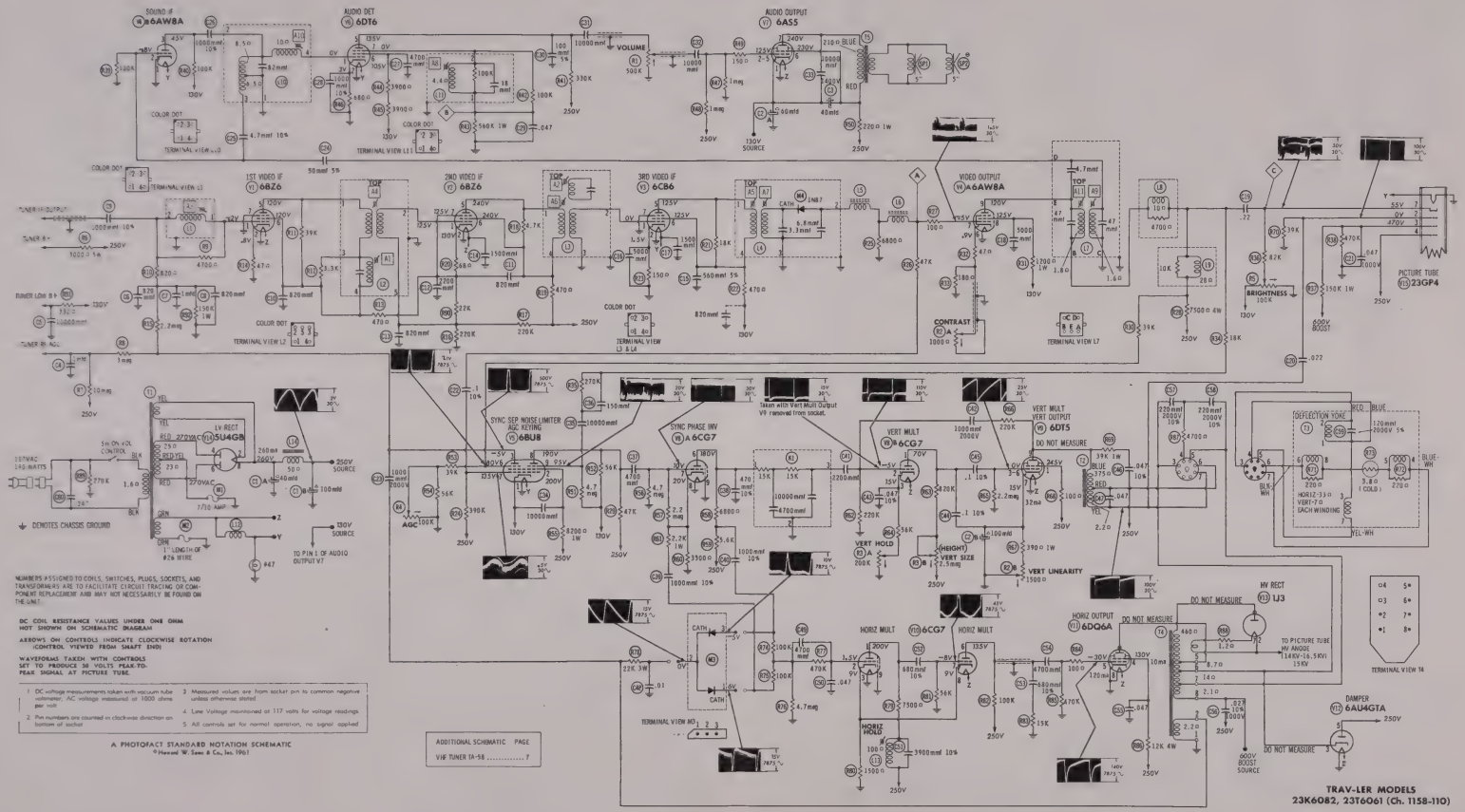
SOUND IF
V6 6AW8A
AUDIO DET
V6 6DT6
AUDIO OUTPUT
V7 6AS5
VOLUME
1ST VIDEO IF
V1 6BZ6
2ND VIDEO IF
V2 6BZ6
3RD VIDEO IF
V3 6CB6
VIDEO OUTPUT
V4 6AW8A
CONTRAST
BRIGHTNESS
PICTURE TUBE
V10 23GP4
SYNC SEP NOISE LIMITER AGC KEYING
V5 6BU8
SYNC PHASE INV
V8 6CG7
VERT MULT
V9 6CG7
VERT MULT VERT OUTPUT
V9 6DT5
DO NOT MEASURE
VERT HOLD
VERT SIZE
VERT LINEARITY
HORIZ MULT
V10 6CG7
HORIZ OUTPUT
V11 6DQ6A
HV RECT
V13 1J3
DAMPER
V12 6AU4GTA
LV RECT
V14 5U4GB
5 ON VOL CONTROL
DENOTES CHASSIS GROUND
TERMINAL VIEW 14
TERMINAL VIEW L1
TERMINAL VIEW L2
TERMINAL VIEW L3 & L4
TERMINAL VIEW L7
TERMINAL VIEW M3
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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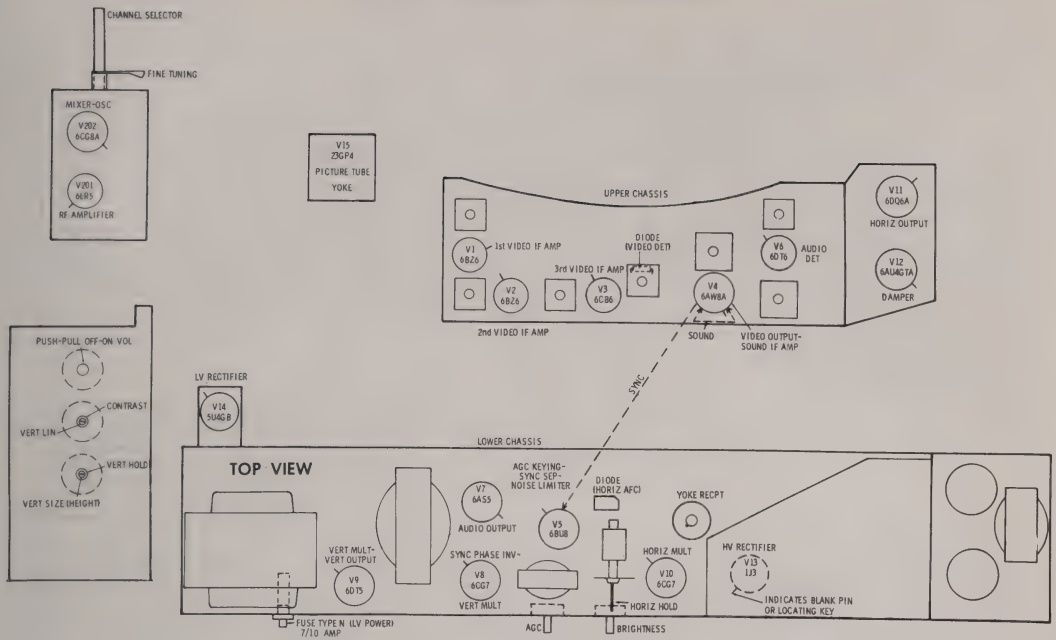
ADDITIONAL SCHEMATIC PAGE
VHF TUNER TA-58 ..... 7
TRAV-LER MODELS
23K6082, 23T6061 (Ch. 1158-110)

# TUBE PLACEMENT CHART




# TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse (LV Power), Fuse (Fil.), V14

SWEEP FAILURE
No raster, has sound V10, V11, V12, V13, V15
No vertical deflection V8, V9
Poor vert. linearity or foldover V8, V9
Poor horiz. linearity or foldover V10, V11, V12
Narrow picture V10, V11, V12, V14
Vert. off freq. V8, V9
Horiz. off freq. Diodes (Horiz. AFC), V10

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4, V7
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V15
Has pic, no sound V4, V6
Overloaded picture V5

SYNC FAILURE
No vert. sync V5, V8
No horiz. sync V5, V8
No vert. or horiz. sync V5, V8

TRAV-LER MODELS
23K6082, 23T6061 (Ch. 1158-110)

FOLDER 2

# ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606L, 9295
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Set Contrast fully clockwise.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | Direct | Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis. | 44MC (10MC Swp) | 41.25MC | Any non-interfering channel | Vert. Amp. thru 47K to point (A). Low side to chassis. (Across Video Det. load) | A1 | Adjust to place marker in 41.25MC trap notch. (See Fig. 1). |
| 2. | " | " | " | 47.25MC | " | " | A2 | Adjust to place marker in other trap notch. |
| 3. | " | " | " | 42.75MC<br>45.75MC | " | " | Mixer Plate Coil & A3 thru A7 | Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Adjust Mixer Plate Coil and A3 for maximum gain. A4 and A5 to shape high frequency side of response curve. A6 and A7 is adjusted to shape low frequency side. |

SOUND IF ALIGNMENT

Connect an output meter across speaker voice coil.
Connect the DC probe of the VTVM to point (B). Common to chassis. Tune in a strong air signal and adjust A8 for maximum output. If two peaks occur during this adjustment, use the one resulting in the highest reading on the VTVM.
Reduce the signal strength by disconnecting the antenna. Adjust A9 and A10 for maximum undistorted sound. Further reduce the signal by moving the antenna lead further away. Retouch A9 and A10 for maximum undistorted sound. Repeat entire procedure if necessary.

4.5MC TRAP ALIGNMENT

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CHANNEL | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 4. | .05mfd | High side to point (A). Low side to chassis. | 4.5MC (Unmod) | Any non-interfering channel | AC probe to point (C). Common to chassis. (Use 0-10VAC scale). | A11 | Adjust for MINIMUM deflection. |

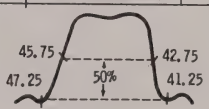
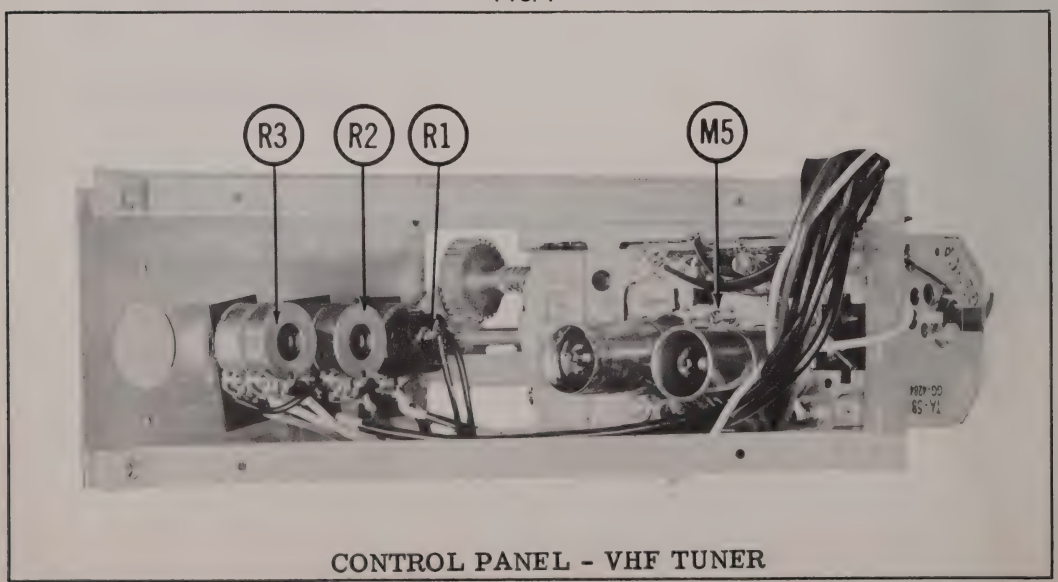
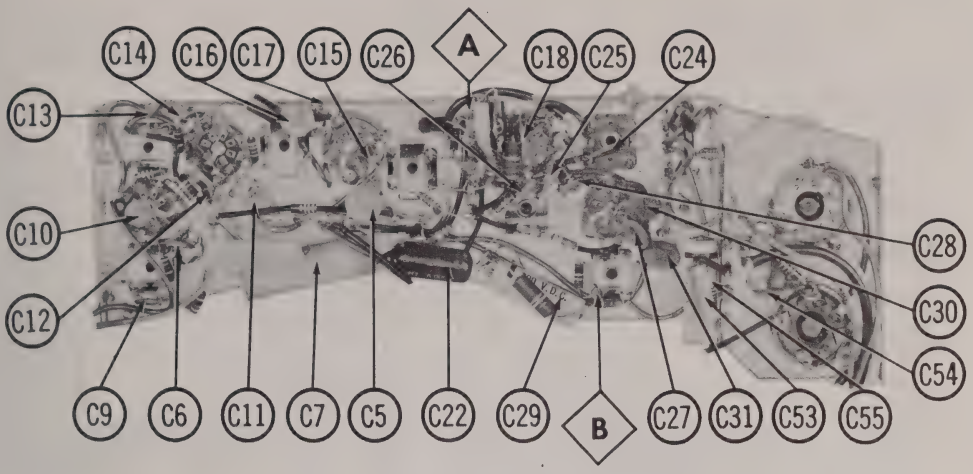


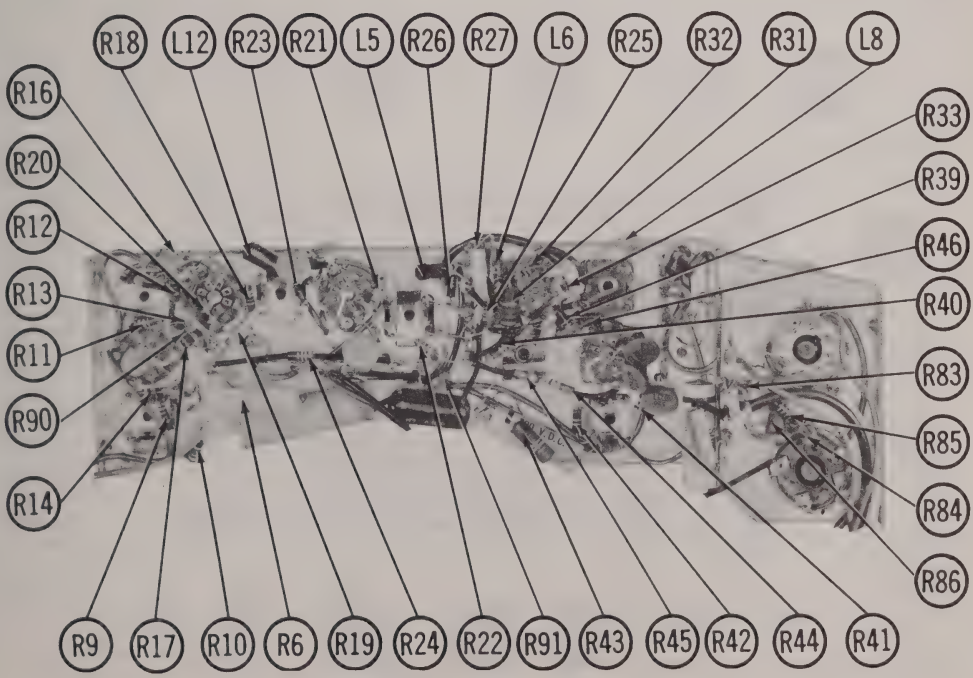
FIG. 1



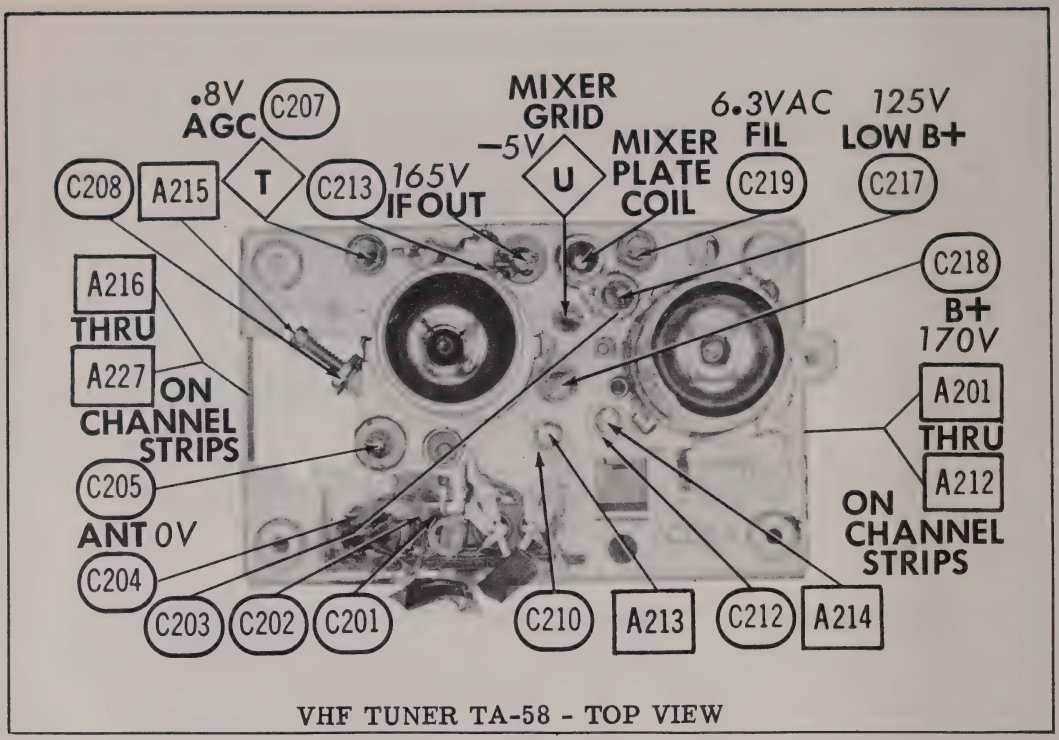
CONTROL PANEL - VHF TUNER



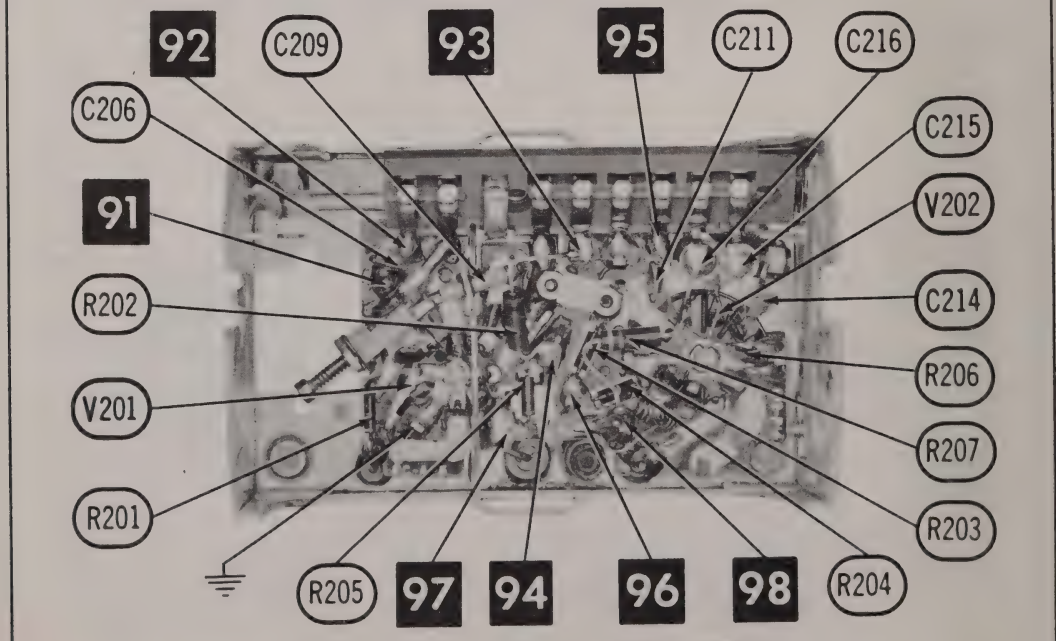

UPPER CHASSIS BOTTOM VIEW - ALIGNMENT, CAPACITOR IDENT.




UPPER CHASSIS BOTTOM VIEW – RESISTOR & INDUCTOR IDENT.




VHF TUNER TA-58 - TOP VIEW




VHF TUNER TA-58 - BOTTOM VIEW

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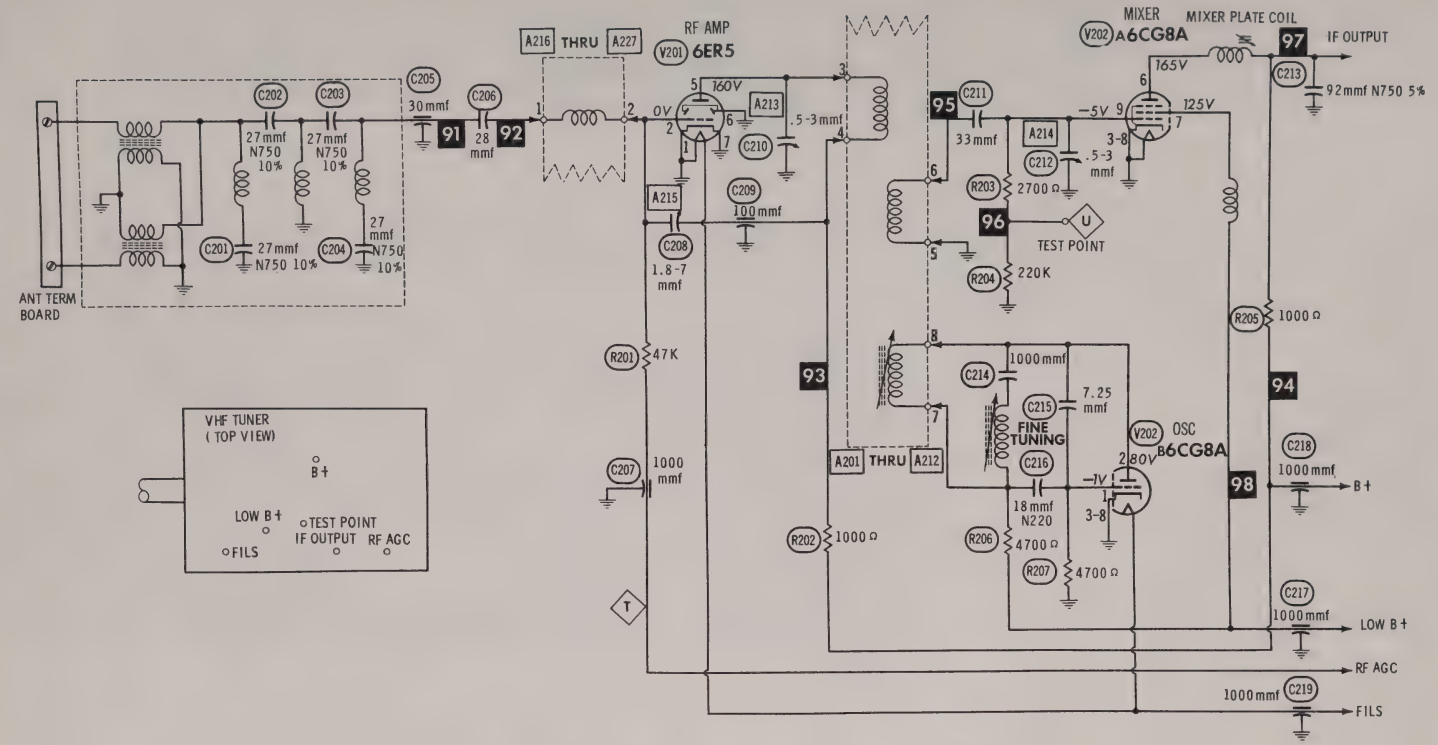
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

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# VHF TUNER TA-58

TRAV-LER MODELS
23K6082, 23T6061 (Ch. 1158-110)

# TV PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | GENERAL ELECTRIC • TYPE | RAYTHEON • TYPE | SYLVANIA • TYPE |
|---|---|---|---|---|
| V1 | 1st Video IF Amp. | 6BZ6 | | |
| V2 | 2nd Video IF Amp. | 6BZ6 | | |
| V3 | 3rd Video IF Amp. | 6CB6 | | |
| V4 | Video Output - Sound IF Amp. | 6AW8A | | |
| V5 | AGC Keying - Sync Sep. - Noise Limiter | 6BU8 | | |
| V6 | Audio Detector | 6DT6 | | |
| V7 | Audio Output | 6AB5 | | |
| V8 | Sync Phase Inv. - Vert. Mult. | | | 6CG7 |
| V9 | Vert. Mult. - Vert. Output | | | 6DT5 |
| V10 | Horiz. Mult. | | | 6CG7 |
| V11 | Horiz. Output | | | 6DQ6A |
| V12 | Damper | | | 6AU4GTA |
| V13 | HV Rectifier | | | 1J3 |
| V14 | L.V Rectifier | | | 5U4GB |

## PICTURE TUBE

| ITEM No. | REPLACEMENT DATA: TRAV-LER PART No. | GENERAL ELECTRIC PART No. | RCA PART No. | RAYTHEON PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| V15 | 23GP4 | | 23CP4 ① | | 23CP4 ② | ① Aluminized ② Silver Screen "85" |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING: CAP. | VOLT | TRAV-LER PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1 | ▲40 | 350 | EC-115 | AFH2-64-25 | B0483 | FP347 | TMD-2700 | TVL-2780 | |
| B | ▲100 | 350 | | | | | | | |
| C2A | ▲60 | 300 | EC-129 | AFH2-80 | B0590 | FP348 | TMD-2550 | TVL-2559 | |
| B | ▲100 | 50 | | | | | | | |
| C3 | 60 | 300 | EC-113 | PRS8580 | BR4025 | TC58 | TD-60-250 | TVA-1511 | |

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | | REMARKS | REPLACEMENT DATA: AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|
| C4 | 1mfd | 100V | | P288N-1.0 | | CUB2W1 | 1DP-S-106 | GEM-2I | 2TM-M1 |
| C5 | 10000 | | | BPD-01 | DD-103 | BYA10S8 | CCD-103 | B-I10 | 5HK-B10 |
| C6 | 630 | | | DI-830 | DD-831 | BYA10T82 | CCD-831 | B-382 | 10TS-T82 |
| C7 | 1mfd | 100V | | P288N-1.0 | | CUB2W1 | 1DP-S-106 | GEM-2I | 2TM-M1 |
| C8 | 820 | | | DI-830 | DD-831 | BYA10T82 | CCD-831 | B-382 | 10TS-T82 |
| C9 | 1000 | 10% | | DI-1000 | DD-102 | 5R5D6 | CCD-102 | GP210 | 10TS-D10 |
| C10 | 820 | | | DI-830 | DD-831 | BYA10T82 | CCD-831 | B-382 | 10TS-T82 |
| C11 | 820 | | | DI-830 | DD-831 | BYA10T82 | CCD-831 | B-382 | 10TS-T82 |
| C12 | 2200 | | | BPD-0022 | DD-222 | BYA10D22 | CCD-222 | B-322 | 5HK-D22 |
| C13 | 820 | | | DI-830 | DD-831 | BYA10T82 | CCD-831 | B-382 | 10TS-T82 |
| C14 | 1500 | | | BPD-0015 | DD-152 | BYA10D15 | CCD-152 | B-315 | 5HK-D15 |
| C15 | 560 | 5% | | | | 3AS756 | CM-398-56U | MCJ347 | MS-356 |
| C16 | 5000 | | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-350 | 5HK-D50 |
| C17 | 1500 | | | BPD-0015 | DD-152 | BYA10D15 | CCD-152 | B-315 | 5HK-D15 |
| C18 | 5000 | | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-350 | 5HK-D50 |
| C19 | .22 | 400V | | P488N-22 | | CUB4P22 | 4DP-S-224 | GEM-4022 | 4TM-P22 |
| C20 | .022 | 600V | | P688N-022 | DD-203 | CUB6S22 | 6DP-S-223 | GEM-6122 | 6TM-S22 |
| C21 | .047 | 1000V | | P1088N-047 | | CUB10S47 | 10DP-S-473 | GEM-10147 | 10TM-S47 |
| C22 | .1 | 600V 10% | | V94C8P1-10% | | P68P1 | 6DP-4-104 | GEM-1001 | 6TM-P10 |
| C23 | 1000 | 2000V | | HVD-30-1000 | DD30-102 | HV83D10 | SCCD-102 | 2HV-S10 | 30GA-D10 |
| C24 | 50 | 5% | | NPO-DI 50 | TCZ-50 | C10Q5C | CM-19B-505J | CNO-450 | 10TCC-V50 |
| C25 | 4.7 | 10% | | NPO-RI 4.7 | TCZ-4R7 | C10V47C | CCTO-4R7 | CNO-547 | 10TCC-V47 |
| C26 | 1000 | 10% | | DI-1000 | DD-102 | 5R5D6 | CCD-102 | GP210 | 10TS-D10 |
| C27 | 4700 | | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-347 | 5HK-D47 |
| C28 | 1000 | 10% | | DI-1000 | DD-102 | P68D1 | CCD-102 | GP210 | 10TS-D10 |
| C29 | .047 | 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-S-473 | GEM-4147 | 2TM-S47 |
| C30 | 100 | 5% | | NPO-DI 100 | TCZ-101 | 22R5T1 | CM-19B-101J | CNO-310 | MS-31 |
| C31 | 10000 | | | BPD-01 | DD-103 | BYA10S8 | CCD-103 | B-I10 | 5HK-B10 |
| C32 | 10000 | | | BPD-01 | DD-103 | BYA10S8 | CCD-103 | B-I10 | 5HK-B10 |
| C33 | 10000 | 1400V | | DAC-27 | DD16-103 | HVE16S | 16D*-S-103 | 2HV-I10 | BL-I10 |
| C34 | 10000 | | | BPD-01 | DD-103 | BYA10S8 | CCD-103 | B-I10 | 5HK-B10 |
| C35 | 10000 | | | BPD-01 | DD-103 | BYA10S8 | CCD-103 | B-I10 | 5HK-B10 |
| C36 | 150 | | | DI-150 | DD-151 | 5R5T5 | CCT-151 | B-315 | 10TS-T15 |
| C37 | 4700 | | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-347 | 5HK-D47 |
| C38 | 470 | 10% | | DI-470 | DD-471 | 5R5T47 | CCD-471 | GP347 | 10TS-T47 |
| C39 | 1000 | 10% | | DI-1000 | DD-102 | 5R5D6 | CCD-102 | GP210 | 10TS-D10 |
| C40 | 1000 | 10% | | DI-1000 | DD-102 | 5R5D6 | CCD-102 | GP210 | 10TS-D10 |
| C41 | 2200 | | | BPD-0022 | DD-222 | BYA10D22 | CCD-222 | B-322 | 5HK-D22 |
| C42 | 1000 | 2000V | | HVD-30-1000 | DD30-102 | HV83D10 | SCCD-102 | 2HV-S10 | 30GA-D10 |
| C43 | .047 | 600V 10% | | V94C8347-10% | | P68S47 | 6DP-3-473 | GEM-1615 | 6TM-S47 |
| C44 | .047 | 600V 10% | | V94C8P1-10% | | P68P1 | 6DP-4-104 | GEM-1001 | 6TM-P10 |
| C45 | .1 | 600V 10% | | V94C8P1-10% | | P68P1 | 6DP-4-104 | GEM-1001 | 6TM-P10 |
| C46 | .047 | 600V 10% | | V94C8347-10% | | P68S47 | 6DP-3-473 | GEM-1615 | 6TM-S47 |
| C47 | .047 | 600V | | P688N-047 | DD-503 | CUB6S47 | 6DP-3-473 | GEM-6147 | 6TM-S47 |
| C48 | .01 | 600V | | P688N-01 | D6-103 | CUB6S | 6DP-3-103 | GEM-611 | 6TM-S1 |
| C49 | 4700 | | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-347 | 5HK-D47 |
| C50 | .047 | 600V | | P688N-047 | DD-503 | CUB6S47 | 6DP-3-473 | GEM-6147 | 6TM-S47 |
| C51 | 3900 | 10% | | 1664-00939 | | 1R5D39 | CM-20B-392K | MCJ462.5 | MS-339 |
| C52 | 680 | 10% | | 1469-00068 | | 5R5T68 | CM-19B-681K | MCJ349 | MS-368 |
| C53 | 680 | 10% | | 1469-00068 | | 5R5T68 | CM-19B-681K | MCJ349 | MS-368 |
| C54 | 4700 | | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-347 | 5HK-D47 |
| C55 | .047 | 600V | | P688N-047 | DD-503 | CUB6S47 | 6DP-3-473 | GEM-6147 | 6TM-S47 |
| C56 | .027 | 1000V 10% | | P1084CM-027 | | DPM8S63 | 16DP-5-303 | GEM-1613 | 10TM-S30 |
| C57 | 220 | 2000V 10% | | | | | VCM-20-221K | | |
| C58 | 220 | 2000V 10% | | | | | VCM-20-221K | | |
| C59 | 120 | 2000V 5% | | | | | VCM-20-121K | | |
| C60 | .047 | 600V | | P688N-047 | DD-503 | CUB6S47 | 6DP-3-473 | GEM-6147 | 6TM-S47 |

## CONTROLS

| ITEM No | RATING: RESISTANCE | WATTS | REPLACEMENT DATA: TRAV-LER PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 500K | ½ | VC-130 | BPL-60 | C47S-500K-Z | B13-153 * | PP58A | Volume |
| B | Shaft | | | Not Req. | 926S-2 | Not Req. | Not Req. | |
| C | Switch | | | Not Req. | Not Req. | SK7 * | Not Req. | Push-Pull Off-On |

## CONTROLS (cont)

| ITEM No. | RATING: RESISTANCE | WATTS | REPLACEMENT DATA: TRAV-LER PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R2A | 1000Ω | ½ | VC-195A | F1-5 | | RTV-734 † | GJ-1518 † | ■ UE491 Contrast |
| B | 1500Ω | ½ | | R3-6 | | | | ▲ UE492 Vert. Linearity |
| R3A | 200K | ½ | VC-194A | F1-33 | | RTV-733 † | GJ-1130 † | ▲ UE421 Vert. Hold |
| B | 2.5meg | ½ | | R2-76 | | | | PTA15L Vert. Size (Height) |
| R4A | 100K | ½ | VC-84 | TT-40 | B47-100K-S | BIJ-128 | PTA15L AGC |
| B | Shaft | | | Not Req. | Not Req. | TM4 | Not Req. | |
| R5A | 100K | ½ | VC-84 | TT-40 | B47-100K-S | BIJ-128 | PTA15L | Brightness |
| B | Shaft | | | Not Req. | Not Req. | TM4 | Not Req. | |

† "CONCENTRIKIT" Equivalent: K-15 Kit with Base Elements and Shafts: BIT-108, P17-038 (Panel) BIJ-109, R15-005 (Rear)

‡ "CONCENTRIKIT" Equivalent: K-16 Kit with Base Elements and Shafts: BIJ-129, P17-028 (Panel) (Not available as a factory assembled unit). BIJ-136, R15-005 (Rear)

■ "STA-LOC" Equivalent: FA13R, RU1521, O8875A, IK-625.

▲ "STA-LOC" Equivalent: FA251, RU2251, O8875A, IK-625.

* Factory Assembled Part #PQ33-133 (SK7).

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA: IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R6 | 3000Ω 5W | PW5-3000 | 5W-SQ-3000 | |
| R7 | 10meg | | | |
| R8 | 3meg | | | |
| R9 | 4700Ω | | | |
| R10 | 820Ω | | | |
| R11 | 39K | | | |
| R12 | 3300Ω | | | |
| R13 | 470Ω | | | |
| R14 | 47Ω | | | |
| R15 | 2.2meg | | | |
| R16 | 220K | | | |
| R17 | 220K | | | |
| R18 | 4700Ω | | | |
| R19 | 470Ω | | | |
| R20 | 68Ω | | | |
| R21 | 18K | | | |
| R22 | 470Ω | | | |
| R23 | 150Ω | | | |
| R24 | 390K | | | |
| R25 | 6800Ω | | | |
| R26 | 47K | | | |
| R27 | 100Ω | | | |
| R28 | 7500Ω 4W | PW5-7500 | 4G-7500 | |
| R29 | 47K | | | |
| R30 | 39K | | | |
| R31 | 1200Ω 1W | | | |
| R32 | 47Ω | | | |
| R33 | 180Ω | | | |
| R34 | 18K | | | |
| R35 | 270K | | | |
| R36 | 82K | | | |
| R37 | 1500K 1W | | | |
| R38 | 470K | | | |
| R39 | 100K | | | |
| R40 | 100K | | | |
| R41 | 330K | | | |
| R42 | 100K | | | |
| R43 | 560K 1W | | | |
| R44 | 3900Ω | | | |
| R45 | 3900Ω | | | |
| R46 | 680Ω | | | |
| R47 | 1meg | | | |
| R48 | 1meg | | | |
| R49 | 150Ω | | | |

| ITEM No. | RATING | REPLACEMENT DATA: IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R50 | 220Ω 1W | | | |
| R51 | 4.7meg | | | |
| R52 | 56K | | | |
| R53 | 39K | | | |
| R54 | 56K | | | |
| R55 | 8200Ω 1W | | | |
| R56 | 4.7meg | | | |
| R57 | 2.2meg | | | |
| R58 | 8200Ω | | | |
| R59 | 5600Ω | | | |
| R60 | 3300Ω | | | |
| R61 | 2200Ω 1W | | | |
| R62 | 220K | | | |
| R63 | 820K | | | |
| R64 | 56K | | | |
| R65 | 2.2meg | | | |
| R66 | 220K | | | |
| R67 | 390Ω 1W | | | |
| R68 | 100Ω | | | |
| R69 | 39K 1W | | | |
| R70 | 39K | | | |
| R71 | 220Ω | | | |
| R72 | 220Ω | | | |
| R73 | 2.5Ω (Coil) | | | |
| R74 | 100K | | | |
| R75 | 100K | | | |
| R76 | 4.7meg | | | |
| R77 | 470K | | | |
| R78 | 22K 3W | PW3-22K | 3G-22K | |
| R79 | 7500Ω | | | |
| R80 | 1500Ω | | | |
| R81 | 56K | | | |
| R82 | 100K | | | |
| R83 | 15K | | | |
| R84 | 100Ω | | | |
| R85 | 470K | | | |
| R86 | 12K 4W | PW5-12K | 4G-12K | |
| R87 | 4700Ω | | | |
| R88 | 1.2Ω | | | |
| R89 | 270K | | | |
| R90 | 22K | | | |
| R91 | 330Ω | | | |
| R92 | 150K 1W | | | |

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | TRAV-LER PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K1 | Vert. Integrator | 4700mmf, 10000mmf, 15K, 15K | CC-130 | Centralab PC-392 |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA: TRAV-LER PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| L1 | 1st Video IF | L-150 | TV-126 * | 6231 * | RTC-8558 * | T208 * | ① Wound on 4700Ω Resistor. |
| L2A | 2nd Video IF | L-153 | TV-127 | 6232 | RTC-8559 | T209 | ② Wound on 10K Resistor. |
| B | 4i. 25MC Trap | | | | | | ③ Includes 100K Resistor, 18mmf Capacitor. |
| L3A | 3rd Video IF | L-155 | TV-128 | 6233 | RTC-8561 | T210 | |
| B | 47. 25MC Trap | | | | | | |
| L4 | 4th Video IF | L-152 | | | | | |
| L5 | RF Choke (10uh) | L-160 | BC-566 | 4612 | RTC-8522 | T660 | *Disregard Secondary. |
| L6 | RF Choke (27uh) | L-158 | TV-192 | 4515 | RTC-8525 | T663 | †Parallel with 4700Ω Resistor. |
| L7A | 4. 5MC Trap | L-154 | | 1483 IFT | RTC-9056 | T253 | ▲Parallel with 10K Resistor. |
| B | 1st Sound IF | | | | | | ■Parallel with 100K Resistor. |
| L8 | Peaking (180uh) | L-163 ① | TV-184 † | 6180 † | RTC-8597 † | T310 † | |
| L9 | Peaking (930uh) | L-163 ② | TV-208 ▲ | 6157 ▲ | RTC-8598 ▲ | T329 ▲ | |
| L10 | 2nd Sound IF | L-167 | | | | | |
| L11 | Quadrature | L-110A ③ | TV-154 ■ | 1481 ■ | RTC-9606 ■ | T248 ■ | |
| L12 | Fil. Choke (1.5uh) | L-164 | BC-562 | 4604 | RTC-8516 | T656 | |

## COILS (SWEEP CIRCUITS)

| ITEM No. | USE | REPLACEMENT DATA: TRAV-LER PART No. | Merit PART No. | Miller PART No. | Rogers PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | Workman TV PART No. |
|---|---|---|---|---|---|---|---|---|---|
| L13 | Horiz. Stabilizer | L-156 | TV-163 | 6210 | RCU10 | RTC-8822 | SS-5 | WLC-25 | T103 |

## FILTER CHOKE

| ITEM No | RATINGS: CURRENT (Measured) | DC RES | INDUCTANCE (@ CURRENT 1000 °C.) | REPLACEMENT DATA: TRAV-LER PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| L14 | .260A | 50Ω | 1.1 Hy. | FC-5 | C-2996 ① | C-2343 | 26C44 ① | C-34X | ① Drill new mounting hole(s). |

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | REPLACEMENT DATA: TRAV-LER PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | | | | | | |
| T1 | 117V ② 1.7A | 540VCT ② .260A DC | 5V ② 3A | TR-52A | P-3882 | P-8355 ① | | R-75BA ① | ① Drill new mounting hole(s). |
| | SEC. 3 | SEC. 4 | SEC. 5 | | | | | | |
| | 6.3V ② 9.5A | | | | | | | | |

## TRANSFORMERS (SWEEP CIRCUITS)

| ITEM No. | USE | REPLACEMENT DATA: TRAV-LER PART No. | Merit PART No. | Rogers PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T2 | Vert. Output | TR-50B | | | | | 26S14 | A-140X |
| T3 | Yoke (Horiz. 19.4MH) (10Ω) (Vert. 14MH) Rear Cover and Centering Device Yoke Clamp | L-174 ▲ | | PCM-2017 ① ② ③ | DY-27A ① ② | | Y-52 ① | Y-60-I |
| | | R-590-0 | | | | | | |
| | | ST-35 | | | | | | |
| T4 | Horiz. Output | TR-51A | HVO-152 * | EFR-172 * | HO-304 * | | FLY-137 * | D-151R * |

① Use original yoke plug, connect same as original.
② Remove yoke damping network; use original.
③ Use original rear cover and centering device.
▲ Includes yoke plug, centering device, and damping network.

### *HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

| ORIGINAL TERMINAL CONNECTIONS | Merit Replacement Connections | Rogers Replacement Connections | Stancor Replacement Connections | Thordarson Replacement Connections | Triad Replacement Connections |
|---|---|---|---|---|---|
| 5 | 5 | 5 | 5 | 5 | 5 & 4 |
| 6 | 6 | 4 | 6 | 6 | 6 |
| 7 | 7 | 2 | 7 | 7 | 7 |
| 8 | 8 | 1 | 8 | 8 | 8 |
| 3 | 3 | 7 | 3 | 1 | 3 |
| 4 | 4 | 8 | 4 | 2 | 4 |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE: PRI. | SEC. | REPLACEMENT DATA: TRAV-LER PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T5 | 2000Ω | 1-2Ω | AT-52 | A-3025 | A-3332 | 24S53 | S-30X | |

## SPEAKER

| ITEM No. | TYPE: SIZE | FIELD | V. C. IMP. | REPLACEMENT DATA: TRAV-LER PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 5" | PM | 3-4Ω | SPK-36 | 5A07 | |
| SP2 | 5" | PM | 3-4Ω | SPK-36 | 5A07 | |
| | 4" x 6" | PM | 3-4Ω | SPK-85 * | 4SA1 | * May be used for SP2 in some versions. |

## FUSES

| ITEM No. | TYPE | RATING | REPLACEMENT DATA: TRAV-LER PART No. | LITTELFUSE PART No. | | BUSS PART No. | |
|---|---|---|---|---|---|---|---|
| | | | | FUSE | HOLDER | FUSE | HOLDER |
| M1 | N | 7/10A 125V 8/B | F-13 | F-14 | 333, 7D0 (N 7/10A 125V 8/B) | 346010 | N 7/10 | HN 1/3 to 3/4 |
| M2 | 1" length of #26 wire | | | | | | | |

## SIGNAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA: TRAV-LER PART No. | GENERAL ELECTRIC PART No. | RAYTHEON PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| M3 | | SR-15 * | 6GDX * | | | * Dual Selenium Diode, Series Connected + Video Detector |
| M4 | 1N87 * | | | 1N87 * | 1N87 * | |

TRAV-LER MODELS 23K6082, 23T6061 (Ch. 1158-110)

FOLDER 2

# TV PARTS LIST AND DESCRIPTIONS (Continued)

## MISCELLANEOUS

| ITEM No. | PART NAME | TRAV-LER PART No. | NOTES |
|---|---|---|---|
| M5 | Tuner | TA-58 | VHF |

## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Mask | MP-200 | Model 23K6082 (Walnut Only) |
| Mask | MP-182 | Models 23K6082, 23T6061 |
| Knob | K-405 | Channel Selector |
| Knob | K-404 | Fine Tuning |
| Knob | K-402 | Volume |
| Cabinet | CA-385 | Model 23T6061 |
| Cabinet | CA-388 | Model 23K6082 |
| Cabinet Leg (Front) | CH-136 | Model 23K6082 |
| Cabinet Leg (Rear) | CH-137 | Model 23K6082 |

## WIRING DATA

| | | |
|---|---|---|
| High Voltage Lead | Use BELDEN No. | 8869 |
| Shielded Hook-up Wire | Use BELDEN No. | 8885 (Single Conductor)<br>8738 (Two Conductor) |
| General-use Unshielded Hook-up Wire | Use BELDEN No. | 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord (Interlock Type) | Use BELDEN No. | 8874 |
| 300Ω Tuner Input Lead | Use BELDEN No. | 8225 |
| 300Ω Antenna Lead-in | Use BELDEN No. | 8230 or 8275 |
| Antenna Rotor Cable | Use BELDEN No. | 8464 (Flat) or 8484 (Round) - 4 Conductor<br>8485 (Round) - 5 Conductor<br>8488 (Round) - 8 Conductor |

# VHF TUNER PARTS LIST AND DESCRIPTIONS

## TA—58

## TUBES

| • GENERAL ELECTRIC • | | | • RAYTHEON • SYLVANIA • | | |
|---|---|---|---|---|---|
| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
| V201 | RF Amp. | 6ER5 | V202 | Mixer - Osc. | 6CG8A |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C201 | 27 N750 10% | | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| C202 | 27 N750 10% | | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| C203 | 27 N750 10% | | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| C204 | 27 N750 10% | | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| C205 | 30 | | | | | | | |
| C206 | 28 | | NPO-DI 25 | TCZ-27 | C10Q27C | CCTO-270 | CNO-427 | 10TCC-Q27 |
| C207 | 1000 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C208 | 1.8-7 | | | 829-7 | | | | |
| C209 | 100 | | EF-0001 | MFT-100 | | | | |
| C210 | .5-3 | | | 829-3 | | CV-1 | CT565 | |
| C211 | 33 | | NPO-DI 33 | DTZ-33 | C10Q33C | CCTO-330 | CNO-433 | 10TCC-Q33 |
| C212 | .5-3 | | | 829-3 | | CV-1 | CT565 | |
| C213 | 92 N750 5% | | | TCN-91 | C10Q91U | | | |
| C214 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-Z10 | 5HK-D10 |
| C215 | 7.25 | | | | C10V7C | | | |
| C216 | 18 N220 | | | | | * | | 10TCR-Q18 |
| C217 | 1000 | | EF-1000 | MFT-1000 | | CCF-102 | CT280A | |
| C218 | 1000 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C219 | 1000 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## RESISTORS

**All wattages 1/2 watt, or less, unless otherwise listed.**

| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R201 | 47K | | | | R205 | 1000Ω | | | |
| R202 | 1000Ω | | | | R206 | 4700Ω | | | |
| R203 | 2700Ω | | | | R207 | 4700Ω | | | |
| R204 | 220K | | | | | | | | |

# TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201 thru A212 ... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO # 2531
A213 thru A215 .... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2525

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the Fine Tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | Two 120Ω Carbon Resistors | Across antenna terminals with 120Ω in each lead. | 213MC | 211.25MC<br>215.75MC | 13 | Vert. Amp. thru 47K across Video Det. load. | A201 | Adjust to place sound marker in trap notch as in Fig. 201. Video marker should fall at 50%. |
| | | | 207MC | 205.25MC<br>209.75MC | 12 | | A202 | |
| | | | 201MC | 199.25MC<br>203.75MC | 11 | | A203 | |
| | | | 195MC | 193.25MC<br>197.75MC | 10 | | A204 | |
| | | | 189MC | 187.25MC<br>191.75MC | 9 | | A205 | |
| | | | 183MC | 181.25MC<br>185.75MC | 8 | | A206 | |
| | | | 177MC | 175.25MC<br>179.75MC | 7 | | A207 | |
| | | | 85MC | 83.25MC<br>87.75MC | 6 | | A208 | |
| | | | 79MC | 77.25MC<br>81.75MC | 5 | | A209 | |
| | | | 69MC | 67.25MC<br>71.75MC | 4 | | A210 | |
| | | | 63MC | 61.25MC<br>65.75MC | 3 | | A211 | |
| | | | 57MC | 55.25MC<br>59.75MC | 2 | | A212 | |

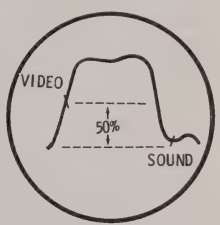


FIG. 201

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Connect the negative lead of a 4.5 volt bias supply to point (T). Positive to chassis.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 2. | Two 120Ω Carbon Resistors | Across antenna terminals with 120Ω in each lead. | 195MC | 193.25MC<br>197.75MC | 10 | Vert. Amp. thru 10K to point (D). Low side to chassis. | A213, A214, A215 | Adjust A213 and A214 for maximum amplitude and symmetry with markers as shown in Fig. 202. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A215 to obtain MINIMUM response on the scope. Reduce bias. |
| 3. | " | " | 213MC | 211.25MC<br>215.75MC | 13 | " | A216 | Adjust for maximum amplitude of response similar to Fig. 202. Adjust by expanding or compressing coil turns. |
| | | | 207MC | 205.25MC<br>209.75MC | 12 | | A217 | |
| | | | 201MC | 199.25MC<br>203.75MC | 11 | | A218 | |
| | | | 195MC | 193.25MC<br>197.75MC | 10 | | A219 | |
| | | | 189MC | 187.25MC<br>191.75MC | 9 | | A220 | |
| | | | 183MC | 181.25MC<br>185.75MC | 8 | | A221 | |
| | | | 177MC | 175.25MC<br>179.75MC | 7 | | A222 | |
| | | | 85MC | 83.25MC<br>87.75MC | 6 | | A223 | |
| | | | 79MC | 77.25MC<br>81.75MC | 5 | | A224 | |
| | | | 69MC | 67.25MC<br>71.75MC | 4 | | A225 | |
| | | | 63MC | 61.25MC<br>65.75MC | 3 | | A226 | |
| | | | 57MC | 55.25MC<br>59.75MC | 2 | | A227 | |

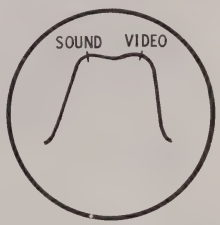
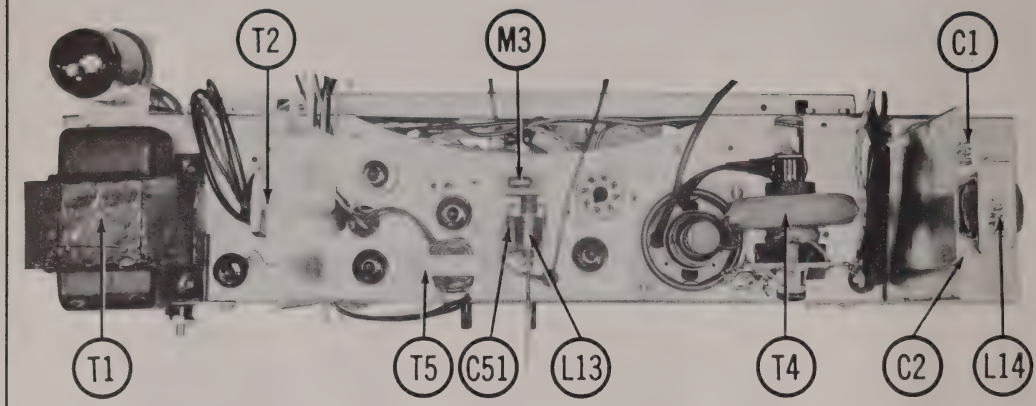
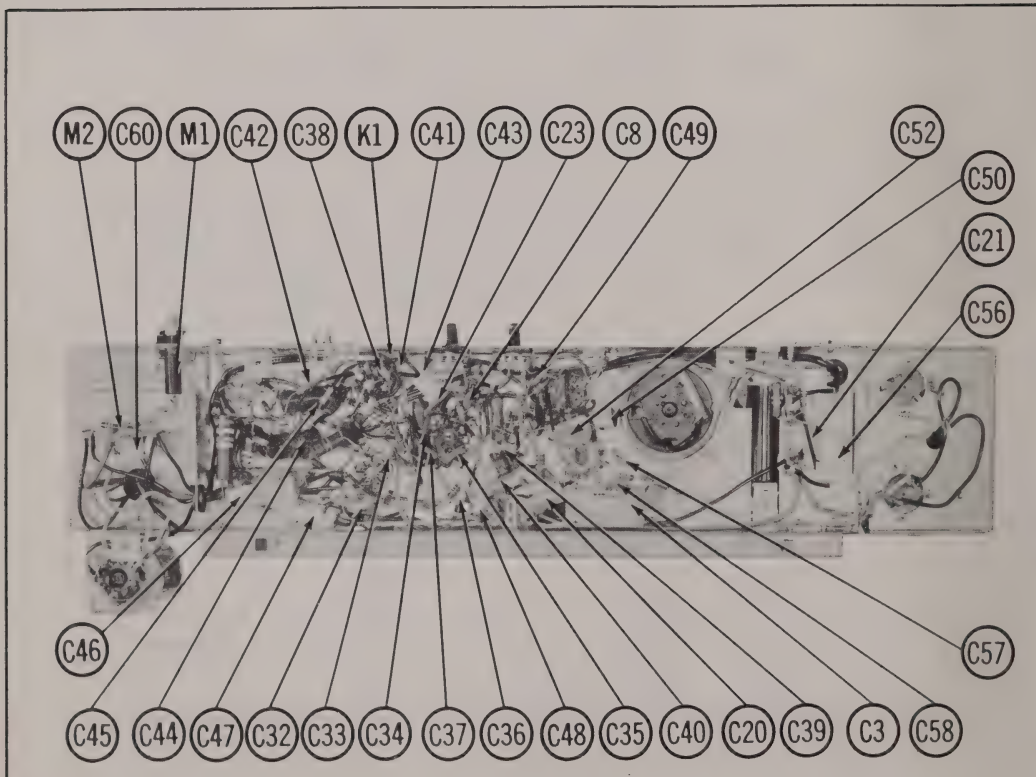


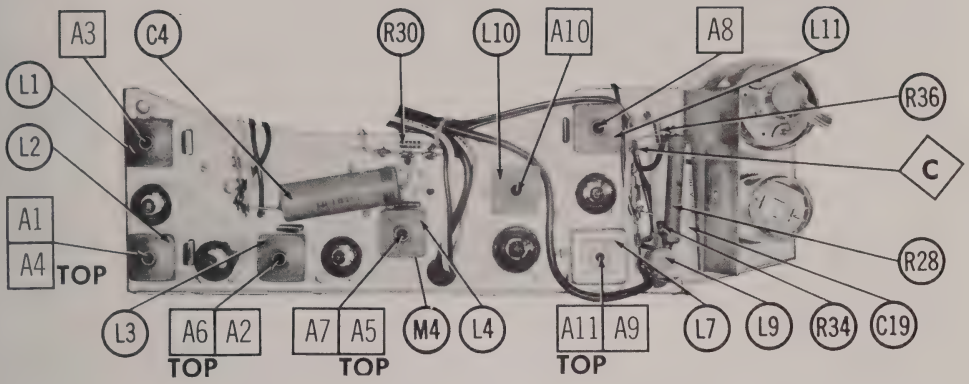
FIG. 202



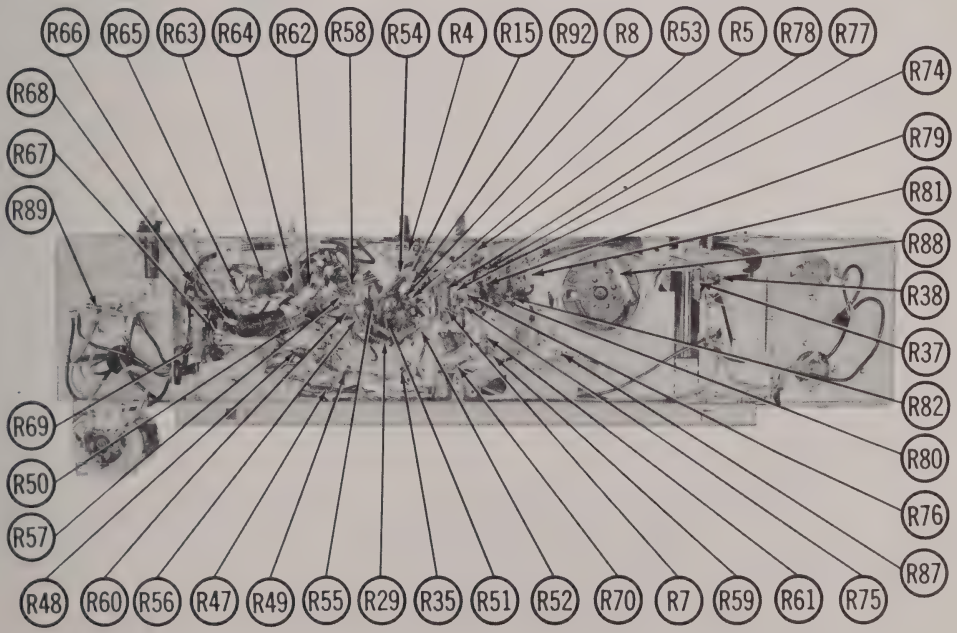

LOWER CHASSIS - TOP VIEW




LOWER CHASSIS BOTTOM VIEW - CAPACITOR & MISC. IDENT.




UPPER CHASSIS - TOP VIEW

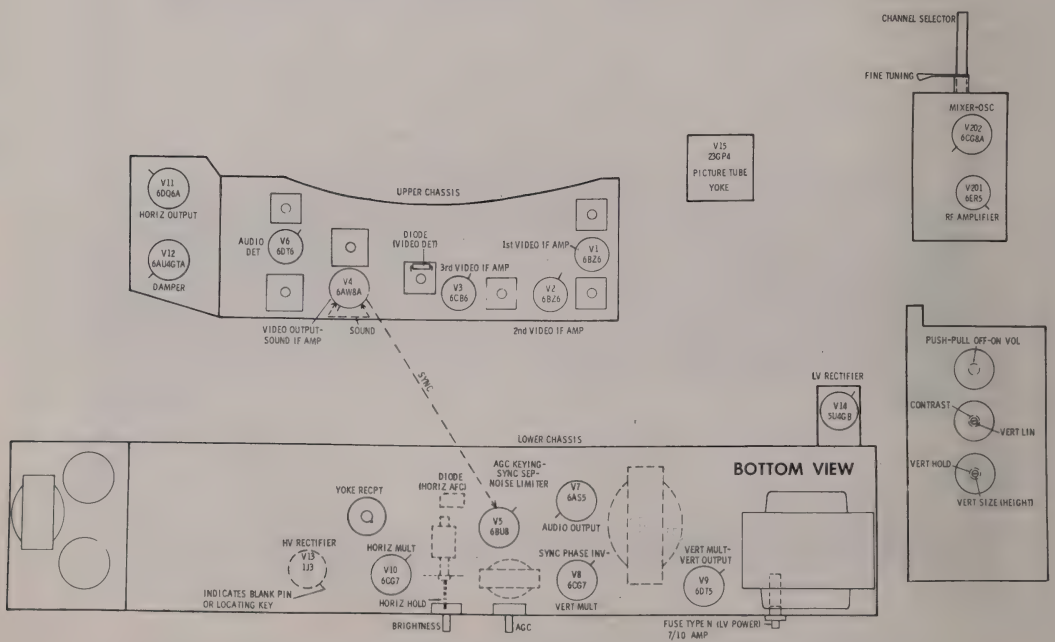



LOWER CHASSIS BOTTOM VIEW - RESISTOR IDENT.

# RESISTANCE MEASUREMENTS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 6BZ6 | 150K | 47Ω | FIL | FIL | ▲540Ω | ▲540Ω | 0Ω | | |
| V2 | 6BZ6 | 120K | 140K | FIL | FIL | †520Ω | †520Ω | 140K | | |
| V3 | 6CB6 | .1Ω | 150Ω | FIL | FIL | ■470Ω | ■470Ω | 0Ω | | |
| V4 | 6AW8A | 0Ω | 100K | 100K | FIL | FIL | ●100Ω | 6900Ω | ■1200Ω | †7500Ω |
| V5 | 6BU8 | ■0Ω | †8200Ω | 2.3meg | FIL | FIL | †30K | †390K | †40K | ■4.7meg |
| V6 | 6DT6 | 18Ω | 680Ω | FIL | FIL | †330K | ■7800Ω | 560K | | |
| V7 | 6AS5 | ¶70K | 500K | FIL | FIL | NC | †270Ω | †480Ω | | |
| V8 | 6CG7 | ●†1.5meg | 220K | ●100K | FIL | FIL | †12K | 2.2meg | 3300Ω | 0Ω |
| V9 | 6DT5 | †150Ω | NC | NC | FIL | FIL | 2.2meg | ● 450Ω | NC | †425Ω |
| V10 | 6CG7 | †7600Ω | 1.1meg | 1500Ω | FIL | FIL | †100K | 56K | 1500Ω | 0Ω |
| V11 | 6DQ6A | NC | FIL | NC | †12K | 470K | TP | FIL | 0Ω | TOP CAP †8Ω |
| V12 | 6AU4GTA | NC | NC | 620K | NC | †50Ω | NC | FIL | FIL | |
| V13 | 1J3 | PINS 1 THRU 8 HAVE INFINITE RESISTANCE | | | | | | | | TOP CAP †470Ω |
| V14 | 5U4GB | NC | ¶60K | NC | 25Ω | NC | 23Ω | NC | ¶60K | |
| V15 | 23GP4 | FIL | 39K | †150K | †50Ω | NC | NC | ● 100K | FIL | |
| V201 | 6ER5 | 0Ω | 4meg | FIL | FIL | †4000Ω | 0Ω | 0Ω | | |
| V202 | 6CG8A | 4700Ω | ■5000Ω | 0Ω | FIL | FIL | †4000Ω | †3000Ω | 0Ω | 223K |
| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM PIN 2 OF V14.
‡ MEASURED FROM PIN 3 OF V12.
NC NO CONNECTION
■ MEASURED FROM 130V SOURCE.
▲ MEASURED FROM PIN 2 OF V2.
TP TIE POINT




# TUBE PLACEMENT CHART

PHOTOFACT® Folder

**PRODUCTION CHANGE
BULLETIN 262**

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 1 IN SET 502

EMERSON CHASSIS 120530C, 120549C, 120550D, 120551C, 120552E, 120553F, 120554E, 120555E, 120556F, 120557E, 120566B

| | |
|---|---|
| | Emerson Models 1600, 1601, 1602, 1604, 1605, 1608, 1609, 1610, 1612, 1613, 1614 (Ch. 120517E, 120518F, 120519C, 120520D, 120525E, 120526C) were covered in PHOTOFACT Folder 1 - Set 502.<br><br>Models 1626, 1628, 1629, 1630, 1632, 1633, 1634, 1636, 1637, 1638, 1640, 1641, 1642, 1644, 1645, 1646, 1648, 1649, 1650, 1656, 1657, 1658, 1660, 1661, 1662, 1668, 1669, 1670, 1672, 1673, 1674, 1676, 1677, 1678 (Ch. 120530C, 120549C, 120550D, 120551C, 120552E, 120553F, 120554E, 120555E, 120556F, 120557E, 120566B) are electrically similar except for the following changes. |
| Ch. 120530C | PICTURE TUBE CHANGE<br>V15 (Picture Tube) is changed to a Type 19XP4.<br><br>TUNER CHANGE<br>The tuner is changed to 471251. This Tuner is electrically identical to Tuner 471226 (Covered in PHOTOFACT Folder 1 - Set 502) except that it doesn't contain a UHF IF Strip or a UHF Input Jack. |
| Ch. 120549C, 120550D, 120551C | PICTURE TUBE CHANGE<br>V15 (Picture Tube) is changed to a Type 23CP4.<br><br>AM/FM AUDIO CHASSIS ADDED<br>An AM/FM Audio Chassis 120566B is used in a few of the Models added. A schematic diagram showing this chassis is given in this bulletin.<br><br>TUNERS USED<br>The Tuners used on these chassis are covered in PHOTOFACT Folder 1 - Set 502. |
| Ch. 120552E | PICTURE TUBE CHANGE<br>V15 (Picture Tube) is changed to a Type 19XP4.<br><br>TUNER CHANGE<br>The Tuner is changed to 471271. This Tuner is electrically identical to Tuners 471228, 471229. A schematic diagram showing the Tuner is given in this bulletin. |
| Ch. 120553F | PICTURE TUBE CHANGE<br>V15 (Picture Tube) is changed to a Type 19XP4.<br><br>TUNER CHANGE<br>The VHF Tuner is changed to 471272. This Tuner is electrically identical to Tuners 471228, 471229. A schematic diagram showing the Tuner is given in this bulletin.<br>The UHF Tuner is changed to 471260. This Tuner is electrically identical to 471227 (Covered in PHOTOFACT Folder 1 - Set 502) except for the use of a new tuning shaft assembly (Part #963115). |

PRODUCTION CHANGE
BULLETIN 262

PRODUCTION CHANGE
BULLETIN 262

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America



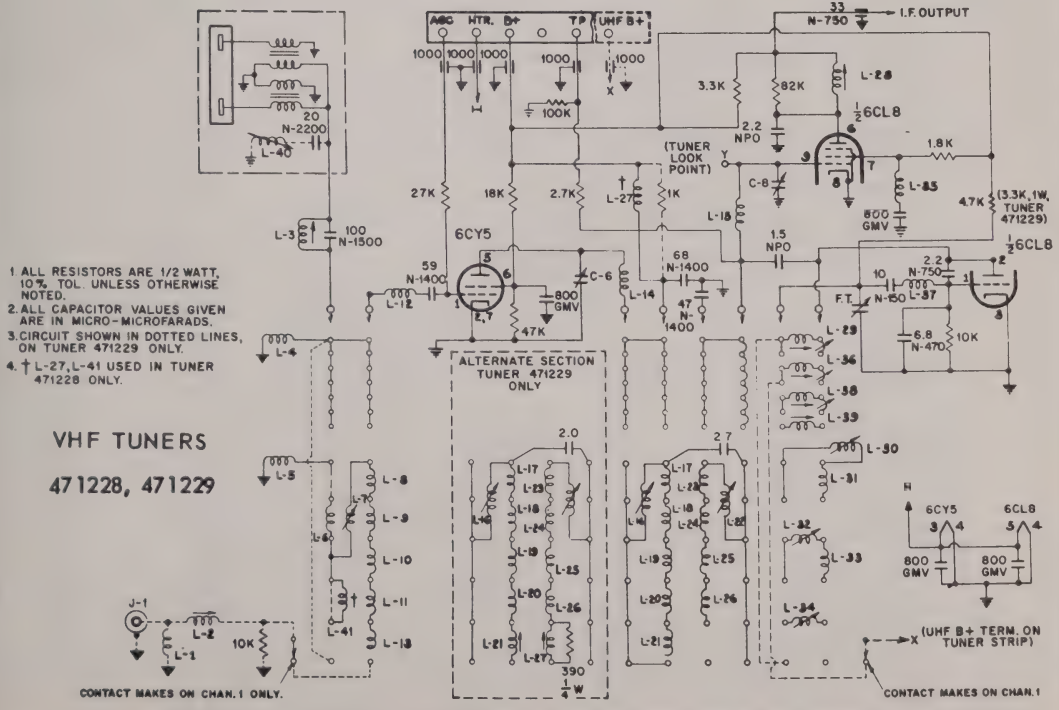
SET 536 FOLDER 3

| | |
|---|---|
| Ch. 120554E | PICTURE TUBE CHANGE<br>V15 (Picture Tube) is changed to a Type 19XP4.<br>TUNER CHANGE<br>The VHF Tuner is changed to 471271. This Tuner is electrically identical to Tuners 471228, 471229. A schematic diagram showing the Tuner is given in this bulletin. |
| Ch. 120555E, 120557E | PICTURE TUBE CHANGE<br>V15 (Picture Tube) is changed to a Type 19XP4.<br>TUNER CHANGE<br>The VHF Tuner is changed to 471228. A schematic diagram of the Tuner is given in this bulletin. |
| Ch. 120556F | PICTURE TUBE CHANGE<br>V15 (Picture Tube) is changed to a Type 19XP4.<br>TUNER CHANGE<br>The VHF Tuner is changed to 471229. A schematic diagram of the Tuner is given in this bulletin. |
| | The following is a list of additional changes that are made by the manufacturer during late production.<br>R2 (Contrast Control) is changed to Part #390653 on Chassis 120549C, 120550D, 120551C.<br>R3 (Brightness Control) is changed to Part #390651 on Chassis 120549C, 120550D, 120551C.<br>R4 (Vertical Hold Control) is changed to Part #390652 on Chassis 120549C, 120550D, 120551C.<br>R1 (Volume Control) is changed to Part #390654 on Chassis 120549C, 120550D, 120551C.<br>R1 (Volume Control) is changed to Part #390663 on Chassis 120552E, 120553F, 120554E.<br>T3 (Deflection Yoke) is changed to either Part #708379 or Part #708379A on all 19" Sets.<br>T3 (Deflection Yoke) is changed to either Part #708371 or Part #708371A on all 23" Sets.<br>T4 (Horizontal Output Transformer) is changed to Part #738177 on all 23" Sets.<br>COMPONENT CHANGES<br>R67 is decreased from 39K 1 watt to 22K 1 watt and goes to ground through an 18K 1 watt resistor.<br>R63 is increased from 3300Ω to 5600Ω.<br>R66 is increased from 10K to 22K.<br>C47 is decreased from .01mfd to .0047mfd. |

## CABINETS & CABINET PARTS

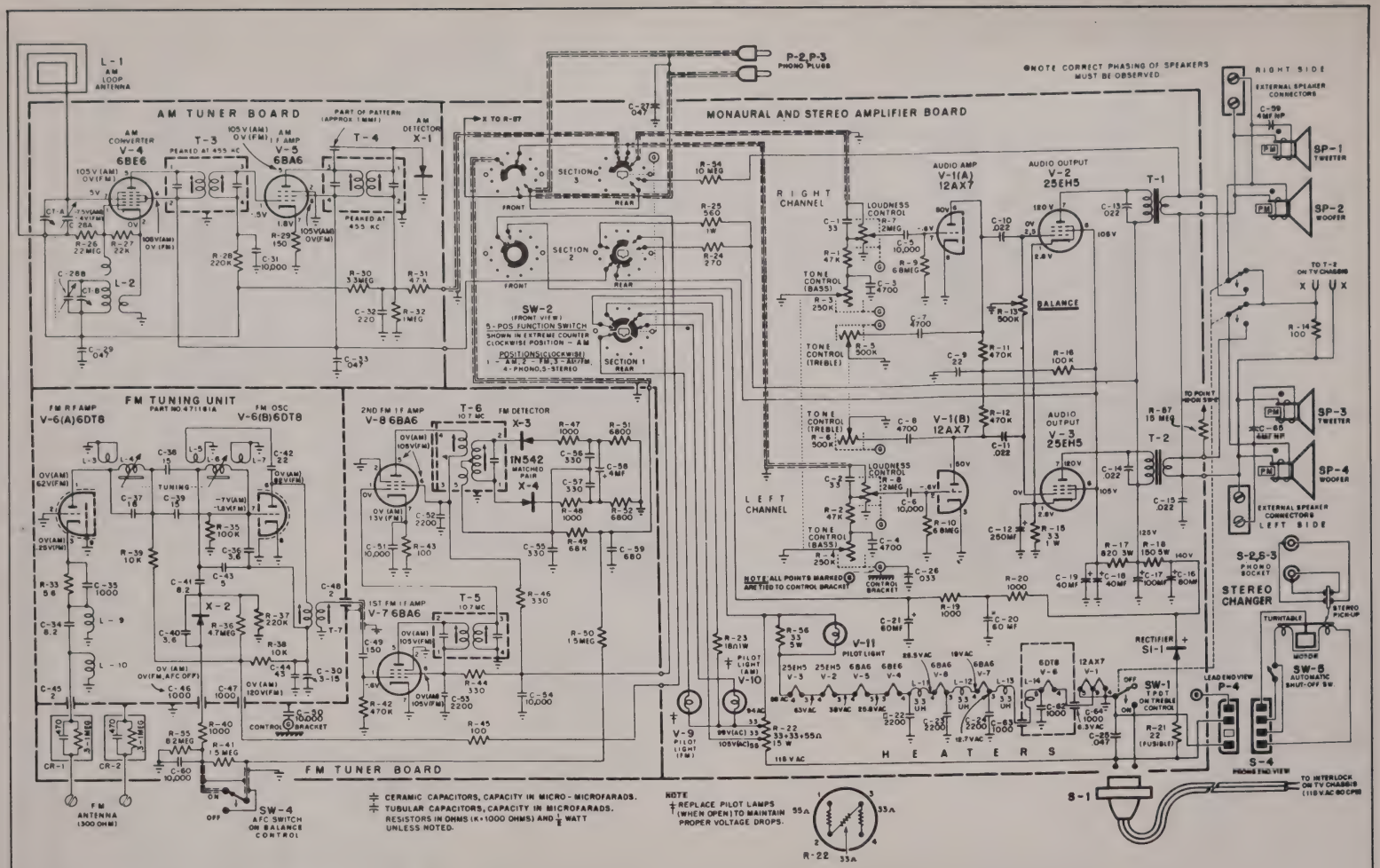
**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Safety Glass | 520300 | Models 1626, 1628, 1629, 1630 |
| Mask | 461328 | Models 1626, 1628, 1629, 1630 |
| Mask | 461331 | Models 1632, 1633, 1634, 1636, 1637, 1638, 1640, 1641, 1642, 1644, 1645, 1646, 1648, 1649, 1650, 1656, 1657, 1658, 1660, 1661, 1662, 1668, 1669, 1670 |
| Front | 461351 | Plastic (Manual, VHF Only), Models 1672, 1673, 1674, 1676, 1677, 1678 |
| Front | 461354 | Plastic (Remote or UHF), Models 1672, 1673, 1674, 1676, 1677, 1678 |
| Plastic Lens | 461353 | Models 1672, 1673, 1674, 1676, 1677, 1678 |
| Knob | 461350 | VHF Channel Selector, Model 1626 |
| Knob | 400048 | VHF Channel Selector, Models 1628, 1629, 1630, 1672, 1673, 1674, 1676, 1677, |
| Knob | 400050 | VHF Channel Selector, Models 1632 thru 1670. 1678 |
| Knob | 400049 | UHF Channel Selector (If Used), All Models except Model 1626 |
| Knob | 461207B | Fine Tuning & Volume, Models 1626, 1628, 1629, 1630, 1672, 1673, 1674, 1676, |
| Knob | 461364 | Fine Tuning & Volume, Models 1632 thru 1670. 1677, 1678 |
| Knob | 461324 | Contrast, Brightness, Vertical Hold, Models 1626, 1628, 1629, 1630 |
| Knob | 461367 | Contrast, Brightness, Vertical Hold, Models 1632 thru 1670 |
| Knob | 460986A | Contrast, Brightness, Vertical Hold, Models 1672, 1673, 1674, 1676, 1677, 1678 |
| Knob | 400055B | Pushbutton Off-On, Models 1632 thru 1662. |
| Knob | 400054B | Pushbutton Off-On, Models 1668, 1669, 1670 |
| Knob | 461401 | Audio Amplifier (5 Used), Models 1668, 1669, 1670 |
| Knob | 461402 | AM Tuning, Models 1668, 1669, 1670 |
| Knob | 461405 | FM Tuning, Models 1668, 1669, 1670 |


AGC
HTR.
B+
TP
UHF B+
I.F. OUTPUT
6CY5
6CL8
(TUNER LOOK POINT)
ALTERNATE SECTION TUNER 471229 ONLY
VHF TUNERS
471228, 471229
1. ALL RESISTORS ARE 1/2 WATT, 10% TOL. UNLESS OTHERWISE NOTED.
2. ALL CAPACITOR VALUES GIVEN ARE IN MICRO-MICROFARADS.
3. CIRCUIT SHOWN IN DOTTED LINES, ON TUNER 471229 ONLY.
4. † L-27, L-41 USED IN TUNER 471228 ONLY.
CONTACT MAKES ON CHAN. 1 ONLY.
CONTACT MAKES ON CHAN. 1
(UHF B+ TERM. ON TUNER STRIP)

Schematic Diagram Courtesy of Emerson Radio & Phonograph Corp.

FOLDER 3



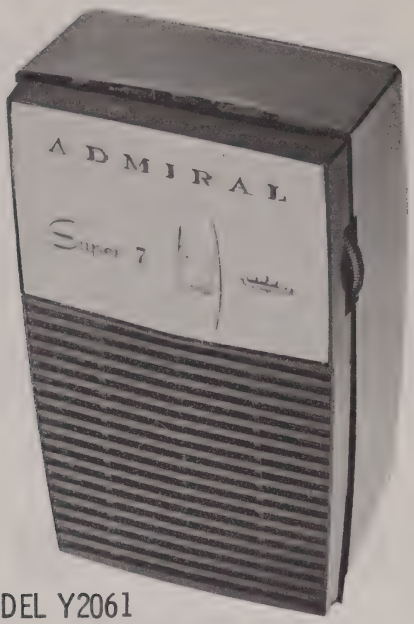

EMERSON CHASSIS 120566B

Schematic Diagram Courtesy of Emerson Radio & Phonograph Corp.

PHOTOFACT® Folder with CIRCUITRACE®

# ADMIRAL MODELS Y2061, Y2063, Y2067, Y2068 (Ch. 7A2)

ADMIRAL MODELS Y2061,
Y2063, Y2067, Y2068 (Ch. 7A2)




MODEL Y2061

ADMIRAL MODELS Y2061,
Y2063, Y2067, Y2068 (Ch. 7A2)

| | |
|---|---|
| TRADE NAME | Admiral Models Y2061, Y2063, Y2067, Y2068 (Ch. 7A2) |
| MANUFACTURER | Admiral Sales Corp., Service Div., 903 Morrissey Drive, P. O. Box 845, Bloomington, Illinois |
| TYPE SET | Battery Operated Transistorized Portable AM Receiver |
| POWER SUPPLY | 9 Volts DC RATING 6MA @ 9 Volts DC (No Signal, Min. Volume) |
| TUNING RANGE—BROADCAST | 535 – 1620KC 12MA @ 9 Volts DC (Signal, Normal Volume) |

## ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3...GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A4, A6.....GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528
A5.....GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | Loop | 455KC (400% Mod.) | Tuning gang fully open. | Across voice coil. | A1, A2, A3 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |
| 2. | " | 1620KC | " | " | A4 | Adjust for maximum output. Repeat Step 1. |
| 3. | " | 535KC | Tuning gang fully closed. | " | A5 | Adjust for maximum output. |
| 4. | " | 1400KC | 1400KC Signal. | " | A6 | Adjust for maximum output while rocking tuning gang. Repeat Steps 2, 3, and 4. |

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

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KF414

# PARTS LIST AND DESCRIPTIONS

## TRANSISTORS

| ITEM No. | ORIG. TYPE | USE | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|---|---|
| | | | RCA PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| X1 | R440 * | Converter | | | | PNP |
| X2 | R336 | 1st IF Amplifier | | | | PNP |
| X3 | R337 | 2nd IF Amplifier | | | | PNP |
| X4 | R338 | AF Amplifier | | | | PNP |
| X5 | R339 | Driver | | | | PNP |
| X6 | R341 † | Output | | | | PNP |
| X7 | R340 † | Output | | | | NPN |

* Alternate R335, 2N544.
† X6 and X7 supplied only in matched pair (Part #57C1-55)

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | ADMIRAL PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | |
| C1 | 25 | 3 | 67B32-17 | BCD3025 | NLW25-3 | TT3X25 | MLV25-3 | TE-1055 | |
| C2 | 10 | 6 | 67B35-7 | PTT-6010 | NLW10-6 | TT6X10 | MLV10-6 | TE-1087 | |
| C3 | 40 | 6 | 67B32-19 | BCD6035 | ECPB114 | TT6X40 | MLV40-6 | VL-1092 | |
| C4 | 100 | 9 | 67B32-18 | BCD10100 | ECPB417 | PET1400 | MLV100-10 | TE-1119.3 | |

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C5 | .47 | | | UK-474 | | | | |
| C6 | 10000 | | C80V103AM | DDM-103 | H-05S1 | | TA-110 | TG-S10 |
| C7 | 50000 | | C80V503AM | UK10-503 | H-05S5 | | TA-150 | TG-S50 |
| C8 | 50000 | | C80V503AM | UK10-503 | H-05S5 | | TA-150 | TG-S50 |
| C9 | 50000 | | C80V503AM | UK10-503 | H-05S5 | | TA-150 | TG-S50 |
| C10 | 50000 | | C80V503AM | UK10-503 | H-05S5 | | TA-150 | TG-S50 |
| C11 | 50000 | | C80V503AM | UK10-503 | H-05S5 | | TA-150 | TG-S50 |
| C12 | 1mfd | #65B45-15 | | UK-105 | | | | |
| C13 | 50000 | Note 1 | C80V503AM | UK10-503 | H-05S5 | | TA-150 | TG-S50 |
| C14 | 10000 | | C80V103AM | DDM-103 | H-05S1 | | TA-110 | TG-S10 |

Note 1. Not used in some versions.
# Admiral Part Number.

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | ADMIRAL PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | |
| R1 | 5000Ω | ½ | A7757 | | | | | Volume & Switch |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

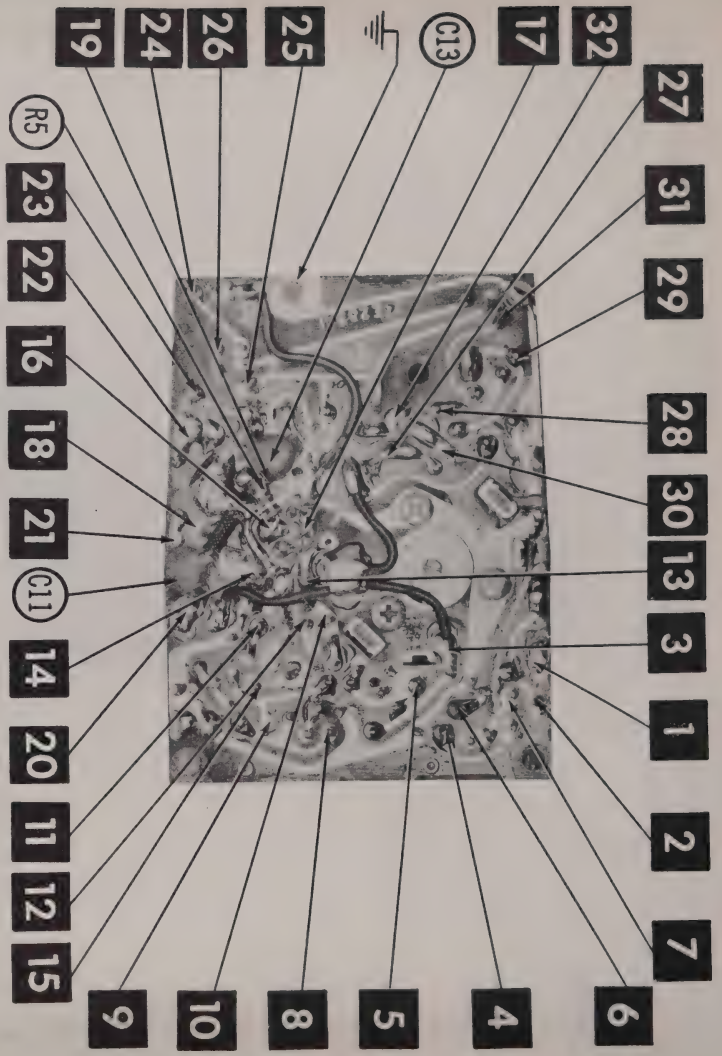
| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R2 | 1700Ω | | | | R14 | 68K | | | |
| R3 | 33K | | | | R15 | 5600Ω | | | |
| R4 | 3000Ω | | | | R16 | 10K | | | |
| R5 | 39K | | | | R17 | 47K | | | |
| R6 | 2700Ω | | | | R18 | 5600Ω | | | |
| R7 | 470Ω | | | | R19 | 180Ω | | | |
| R8 | 1200Ω | | | | R20 | 330Ω | | | |
| R9 | 15K | | | | R21 | 3600Ω | | | |
| R10 | 3000Ω | | | | R22 | 10Ω | | | |
| R11 | 1000Ω | | | | R23 | 10Ω | | | |
| R12 | 39K | | | Note 1 | R24 | 100Ω | | | |
| R13 | 1000Ω | | | Note 1 | | | | | |

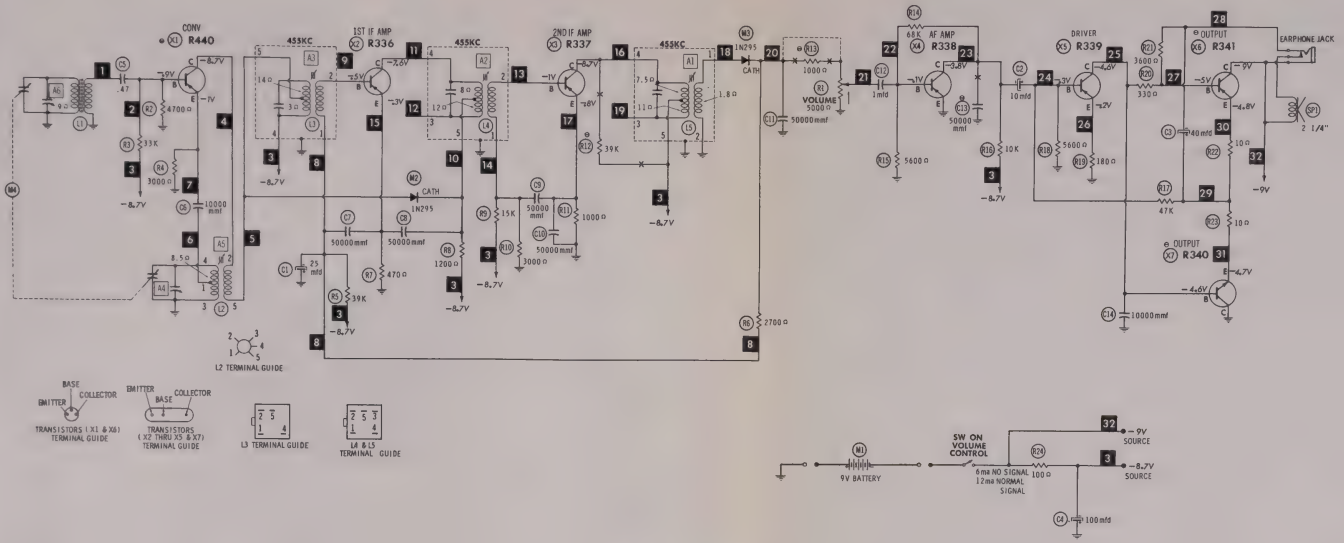
Note 1. Not used in some versions.

CONTINUED ON REAR PAGE

A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD






❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE
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**ADMIRAL MODELS Y2061, Y2063, Y2067, Y2068 (Ch. 7A2)**

# PARTS LIST AND DESCRIPTIONS (Continued)

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | | ADMIRAL PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | |
| L1 | Loopstick | 69C218-16 | | | | | |
| L2 | Osc. | 69B246-5 | | | | | |
| L3 | 1st IF | 72C223-1 | | | | | |
| L4 | 2nd IF | 72C223-2 | | | | | |
| L5 | 3rd IF | 72C223-3 | | | | | |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | ADMIRAL PART No. | QUAM PART No. | |
| SP1 | 2 1/4" | PM | 60-80Ω | 78B168-2 | 22A06Z80 | |

## BATTERIES

| ITEM No. | VOLTAGE | ADMIRAL PART No. | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | | | BURGESS | | EVEREADY | | MALLORY | | |
| | | | "A" | "B" | "A" | "B" | "A" | "B" | |
| M1 | 9V | | | 2U6 | | 216 | | M-1604 | |

## SIGNAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | ADMIRAL PART No. | GENERAL ELECTRIC PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| M2 | 1N295 | 57C1-54 | | 1N295 | 1N295 | Overload (Pigtail) |
| M3 | 1N295 | 57C1-54 | | 1N295 | 1N295 | Detector - AVC (Pigtail) |

## MISCELLANEOUS

| ITEM No. | PART NAME | ADMIRAL PART No. | NOTES |
|---|---|---|---|
| M4 | Tuning Cap. Printed Board | 68C80-2<br>14E283-1 | 2 Gang<br>Less Transistors & Components |

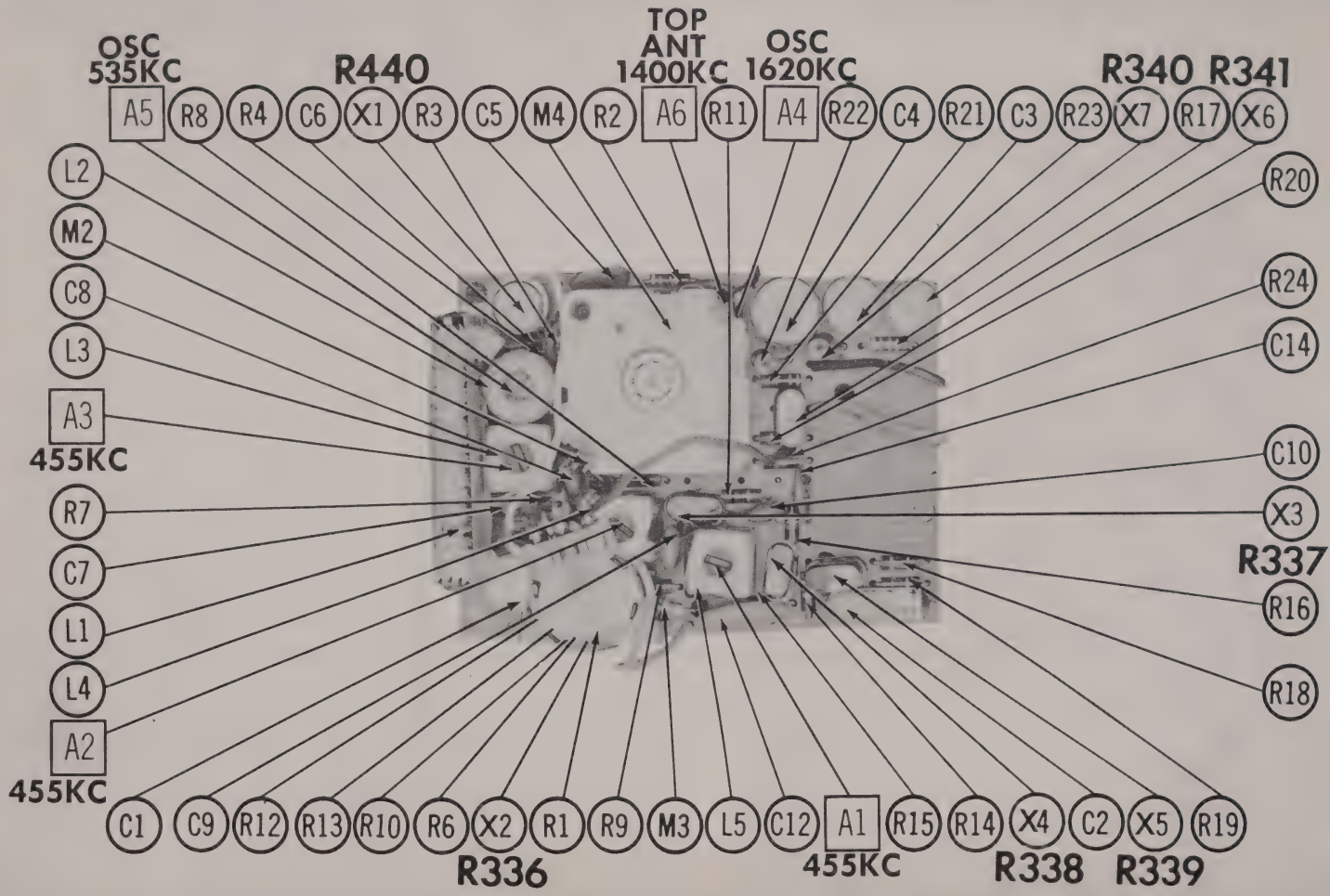
## CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Dial Lens | 24B35-1 | |
| Dial Scale | 21B136-2 | |
| Knob | 33C383-1 | Tuning |
| Knob | 33C383-2 | Volume |
| Cabinet Back | A7744 | Model Y2061 |
| Cabinet Back | A7756 | Model Y2063 |
| Cabinet Back | A7745 | Model Y2067 |
| Cabinet Back | A7746 | Model Y2068 |
| Cabinet Front | A7741 | Model Y2061 |
| Cabinet Front | A7755 | Model Y2063 |
| Cabinet Front | A7742 | Model Y2067 |
| Cabinet Front | A7743 | Model Y2068 |

## WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors




CHASSIS TOP VIEW

PHOTOFACT® Folder

**BELL SOUND
MODEL 2420**

BELL SOUND
MODEL 2420

BELL SOUND
MODEL 2420

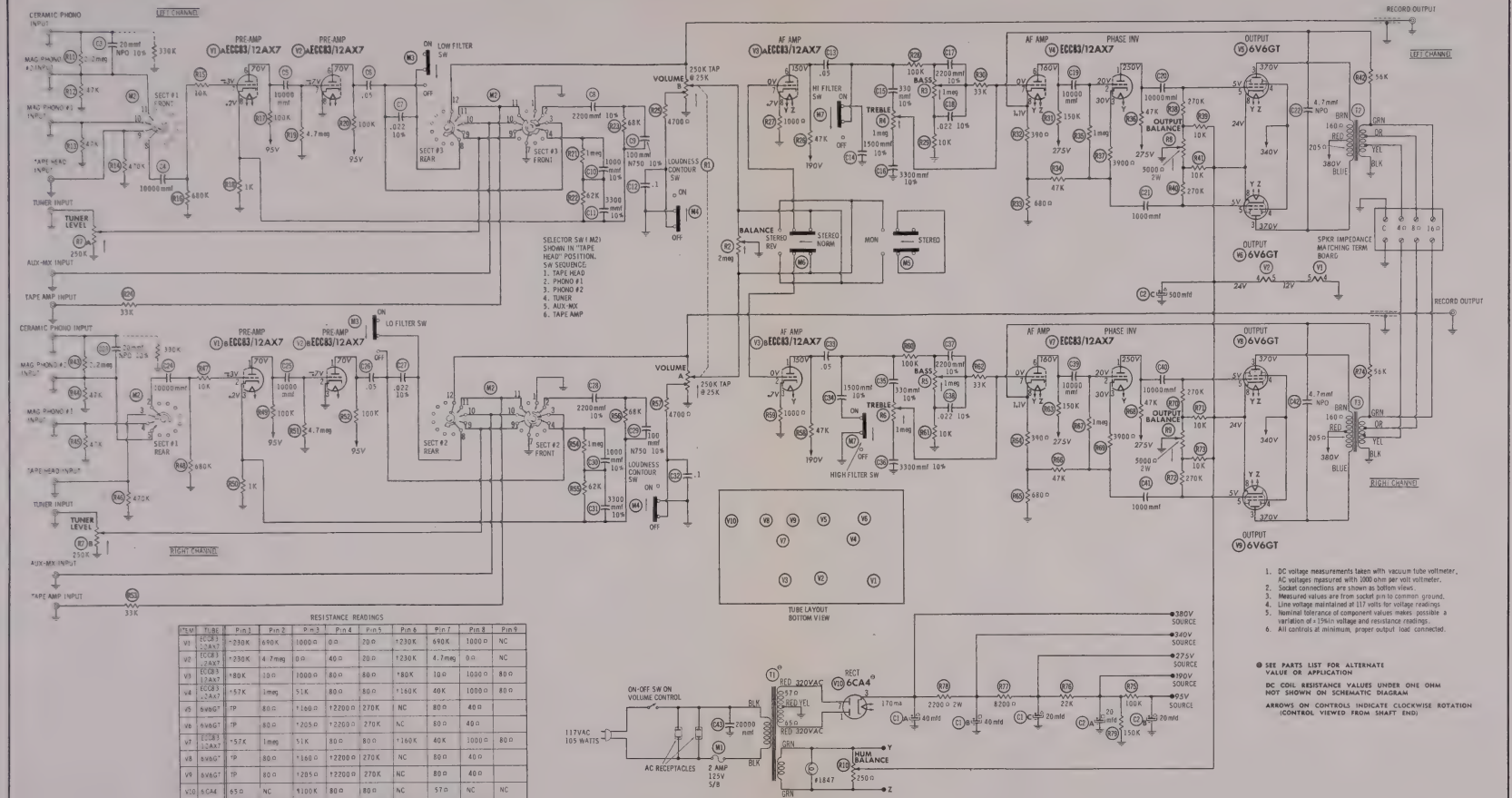
| | |
|---|---|
| TRADE NAME | Bell Sound Model 2420 |
| MANUFACTURER | Bell Sound Div., Thompson Ramo Wooldridge Inc., 555 Marion Road, Columbus 7, Ohio |
| TYPE SET | AC Operated 10 Tube Stereo Amplifier |
| POWER SUPPLY | 110 — 120 Volts AC, 60 Cycles RATING 105 Watts, .94 Amp. @ 117 Volts AC |

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KV532

CHASSIS BOTTOM VIEW-FIXED RESISTOR IDENT.




RESISTANCE READINGS

| *&¶ | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | ECC83 /12AX7 | *230K | 690K | 1000Ω | 0Ω | 20Ω | *230K | 690K | 1000Ω | NC |
| V2 | ECC83 /12AX7 | *230K | 4.7meg | 0Ω | 40Ω | 20Ω | *230K | 4.7meg | 0Ω | NC |
| V3 | ECC83 /12AX7 | *80K | 10Ω | 1000Ω | 80Ω | 80Ω | *80K | 10Ω | 1000Ω | 80Ω |
| V4 | ECC83 /12AX7 | *57K | 1meg | 51K | 80Ω | 80Ω | *160K | 40K | 1000Ω | 80Ω |
| V5 | 6V6GT | TP | 80Ω | *160Ω | ¶2200Ω | 270K | NC | 80Ω | 40Ω | |
| V6 | 6V6GT | TP | 80Ω | *205Ω | ¶2200Ω | 270K | NC | 80Ω | 40Ω | |
| V7 | ECC83 /12AX7 | *57K | 1meg | 51K | 80Ω | 80Ω | *160K | 40K | 1000Ω | 80Ω |
| V8 | 6V6GT | TP | 80Ω | *160Ω | ¶2200Ω | 270K | NC | 80Ω | 40Ω | |
| V9 | 6V6GT | TP | 80Ω | *205Ω | ¶2200Ω | 270K | NC | 80Ω | 40Ω | |
| V10 | 6CA4 | 65Ω | NC | ¶100K | 80Ω | 80Ω | NC | 57Ω | NC | NC |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
* MEASURED FROM PIN 3 OF V10. NC NO CONNECTION TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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**BELL SOUND MODEL 2420**

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA) |
|---|---|---|
| V1 | Left Channel Preamp. - Right Channel Preamp. | ECC83/12AX7 |
| V2 | Left Channel Preamp. - Right Channel Preamp. | ECC83/12AX7 |
| V3 | Left Channel AF Amp. - Right Channel AF Amp. | ECC83/12AX7 |
| V4 | Left Channel AF Amp. - Left Channel Phase Inv. | ECC83/12AX7 |
| V5 | Left Channel Output | 6V6GT |
| V6 | Left Channel Output | 6V6GT |
| V7 | Right Channel AF Amp. - Right Channel Phase Inv. | ECC83/12AX7 |
| V8 | Right Channel Output | 6V6GT |
| V9 | Right Channel Output | 6V6GT |
| V10 | Rectifier | 6CA4 (EZ81) • |

• Alternate

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA Bell Sound PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ▲40 | 450 | 23B87 | AFH3-43-50 | C0330 | FP376.9 | TMT-3745 | TVL-3786 | |
| B | ■40 | 450 | | | | | | | |
| C | ▲20 | 450 | | | | | | | |
| C2A | ▲20 | 350 | 23B96 | | B0500 | FP282.5 | TMD-2640 | TVL-2759 | |
| B | ■20 | 350 | | | BR5002 | TC2505 | TD-500-25 | TVA-1209 | |
| C | ▲500 | 25 | | | | | | | |

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C3 | 20 NPO 10% | | NPO-DI 20 | DTZ-20 | C10Q20C | CCTO-200 | CNO-422 | 10TCC-Q20 |
| C4 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C5 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C6 | .05 400V | | P488N-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |
| C7 | .022 50V 10% | | V84C2S22-10% | | PM4S22 | 1DP-1-223 | | 2TM-S22 |
| C8 | 2200 10% | | DI-2200 | | PM6D22 | CCD-222 | GP222 | 10TS-D22 |
| C9 | 100 N750 10% | | N750-DI 100 | DTN-100 | C10T1U | CCTN-101 | CN7-310 | 10TCU-T10 |
| C10 | 1000 10% | | DI-1000 | DD-102 | 5R5D1 | CCD-102 | GP210 | 10TS-D10 |
| C11 | 3300 10% | | DI-3300 | | PM6D33 | CCD-332 | JL-233 | 10TS-D33 |
| C12 | .1 200V | | P288N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C13 | .05 400V | | P488N-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |
| C14 | 1500 10% | | DI-1500 | DD-152 | PM6D15 | CCD-152 | GP215 | 10TS-D15 |
| C15 | 330 10% | | DI-330 | DD-331 | L10T33 | CCD-331 | GP333 | 10TS-T33 |
| C16 | 3300 10% | | DI-3300 | | PM6D33 | CCD-332 | JL-233 | 10TS-D33 |
| C17 | 2200 10% | | DI-2200 | | PM6D22 | CCD-222 | GP222 | 10TS-D22 |
| C18 | .022 50V 10% | | V84C2S22-10% | | PM4S22 | 1DP-1-223 | | 2TM-S22 |
| C19 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C20 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C21 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C22 | 4.7 NPO | | NPO-DI 4.7 | DTZ-4R7 | C10V47C | CCTO-4R7 | CNO-547 | 10TCC-V47 |
| C23 | 20 NPO 10% | | NPO-DI 20 | DTZ-20 | C10Q20C | CCTO-200 | CNO-422 | 10TCC-Q20 |
| C24 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C25 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C26 | .05 400V | | P488N-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |
| C27 | .022 50V 10% | | V84C2S22-10% | | PM4S22 | 1DP-1-223 | | 2TM-S22 |
| C28 | 2200 10% | | DI-2200 | | PM6D22 | CCD-222 | GP222 | 10TS-D22 |
| C29 | 100 N750 10% | | N750-DI 100 | DTN-100 | C10T22U | CCTN-101 | CN7-310 | 10TCU-T10 |
| C30 | 1000 10% | | DI-1000 | DD-102 | 5R5D1 | CCD-102 | GP210 | 10TS-D10 |
| C31 | 3300 10% | | DI-3300 | | PM6D33 | CCD-332 | JL-233 | 10TS-D33 |
| C32 | .1 200V | | P288N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C33 | .05 400V | | P488N-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |
| C34 | 1500 10% | | DI-1500 | DD-152 | PM6D15 | CCD-152 | GP215 | 10TS-D15 |
| C35 | 330 10% | | DI-330 | DD-331 | L10T33 | CCD-331 | GP333 | 10TS-T33 |
| C36 | 3300 10% | | DI-3300 | | PM6D33 | CCD-332 | JL-233 | 10TS-D33 |
| C37 | 2200 10% | | DI-2200 | | PM6D22 | CCD-222 | GP222 | 10TS-D22 |
| C38 | .022 50V 10% | | V84C2S22-10% | | PM4S22 | 1DP-1-223 | | 2TM-S22 |
| C39 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C40 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C41 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C42 | 4.7 NPO | | NPO-DI 4.7 | DTZ-4R7 | C10V47C | CCTO-4R7 | CNO-547 | 10TCC-V47 |
| C43 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA Bell Sound PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 250K | ½ | 15A90 | | | | | Volume, Right Channel |
| | 25K Tap | | | | | | | |
| B | 250K | ½ | | | | | | Volume, Left Channel |
| | 25K Tap | | | | | | | |
| C | Switch | | | | | | | Push-Pull Off-On |
| R2A | 2meg | ½ | 15A87 | B-75 | A47-2meg-S | Q11-139 | U56 | Balance |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| R3A | 1meg | ½ | 15A92 | B-70 | A47-1meg-Z | Q13-137 | U53 | Bass, Left Channel |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| R4A | 1meg | ½ | 15A92 | B-70 | A47-1meg-Z | Q13-137 | U53 | Treble, Left Channel |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| R5A | 1meg | ½ | 15A92 | B-70 | A47-1meg-Z | Q13-137 | U53 | Bass, Right Channel |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| R6A | 1meg | ½ | 15A92 | B-70 | A47-1meg-Z | Q13-137 | U53 | Treble, Right Channel |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| R7A | 250K | ½ | 15A96 | F1-35 | | † QJ-1536R | ■ UE4079 | Tuner Level, Left Channel |
| B | 250K | ½ | | R2-35 | | | | Tuner Level, Right Channel |
| R8 | 5000Ω | 2(WW) | 15A94 | | | | | Output Balance, Left Channel |
| R9 | 5000Ω | 2(WW) | 15A94 | | | | | Output Balance, Right Channel |
| R10A | 250Ω | ½ | 15B35 | TT-2 | | B11-201 | | Hum Balance |
| B | Shaft | | | Not Req. | | TM4 | | |

† "CONCENTRIKIT" Equivalent: K-8 Kit with Base Elements and Shafts: B13-130, P9-018 (Panel)
(Not available as a factory assembled unit). B13-130, R11-028 (Rear)
R5 (Retainer)

■ "STA-LOC" Equivalent: FA254A, RU254A, OK500, 1K875.

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R1 | 2.2meg | | | |
| R2 | 47K | | | |
| R3 | 47K | | | |
| R4 | 470K | | | |
| R5 | 10K | | | |
| R6 | 680K | | | |
| R7 | 100K | | | |
| R8 | 1000Ω | | | |
| R9 | 4.7meg | | | |
| R20 | 100K | | | |
| R21 | 1meg | | | |
| R22 | 62K | | | |
| R23 | 68K | | | |
| R24 | 33K | | | |
| R25 | 4700Ω | | | |
| R26 | 47K | | | |
| R27 | 1000Ω | | | |
| R28 | 100K | | | |
| R29 | 10K | | | |
| R30 | 33K | | | |
| R31 | 150K | | | |
| R32 | 390Ω | | | |
| R33 | 680Ω | | | |
| R34 | 47K | | | |
| R35 | 1meg | | | |
| R36 | 47K | | | |
| R37 | 3900Ω | | | |
| R38 | 270K | | | |
| R39 | 10K | | | |
| R40 | 270K | | | |
| R41 | 10K | | | |
| R42 | 56K | | | |
| R43 | 2.2meg | | | |
| R44 | 47K | | | |
| R45 | 47K | | | |

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R46 | 470K | | | |
| R47 | 10K | | | |
| R48 | 680K | | | |
| R49 | 100K | | | |
| R50 | 1000Ω | | | |
| R51 | 4.7meg | | | |
| R52 | 100K | | | |
| R53 | 33K | | | |
| R54 | 1meg | | | |
| R55 | 62K | | | |
| R56 | 68K | | | |
| R57 | 4700Ω | | | |
| R58 | 47K | | | |
| R59 | 1000Ω | | | |
| R60 | 100K | | | |
| R61 | 10K | | | |
| R62 | 33K | | | |
| R63 | 150K | | | |
| R64 | 390Ω | | | |
| R65 | 680Ω | | | |
| R66 | 47K | | | |
| R67 | 1meg | | | |
| R68 | 47K | | | |
| R69 | 3900Ω | | | |
| R70 | 270K | | | |
| R71 | 10K | | | |
| R72 | 270K | | | |
| R73 | 10K | | | |
| R74 | 56K | | | |
| R75 | 100K | | | |
| R76 | 22K | | | |
| R77 | 8200Ω | | | |
| R78 | 2200Ω 2W | | | |
| R79 | 150K | | | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Bell Sound PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| | PRI. | SEC. 1 | SEC. 2 | | | | | | |
| T1 | 117V ⓐ .94A | 640VCT ⓐ .170A DC | 6.3V ⓐ 6A | 32B123 ① | | | | | ① Part #32B124 is used in 50% version. |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | | | Bell Sound PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| | PRI. | SEC. | | | | | | |
| T2 | 9500Ω CT | 16Ω Tap ⓐ 8Ω, 4Ω | 32B140 | | | 24S19 | | |
| T3 | 9500Ω CT | 16Ω Tap ⓐ 8Ω, 4Ω | 32B140 | | | 24S19 | | |

## FUSES

| ITEM No. | TYPE | RATING | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Bell Sound PART No. | | LITTELFUSE PART No. | | BUSS PART No. | |
| | | | FUSE | HOLDER | FUSE | HOLDER | FUSE | HOLDER |
| M1 | 3AG | 2A 125V S/B | 53A16 | 53A8 | 313002 (3AG 2A 125V) S/B | 342001 | MDL 2 | HKP |

## MISCELLANEOUS

| ITEM No. | PART NAME | Bell Sound PART No. | NOTES |
|---|---|---|---|
| M2 | Switch | 43A82 | Function Selector (Rotary Type) |
| M3 | Switch | 43A45 | Lo-Filter (DPDT Slide Type) |
| M4 | Switch | 43A45 | Loudness Contour (DPDT Slide Type) |
| M5 | Switch | 43A45 | Mono-Stereo (DPDT Slide Type) |
| M6 | Switch | 43A45 | Normal-Reverse (DPDT Slide Type) |
| M7 | Switch | 43A45 | Hi-Filter (DPDT Slide Type) |

## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

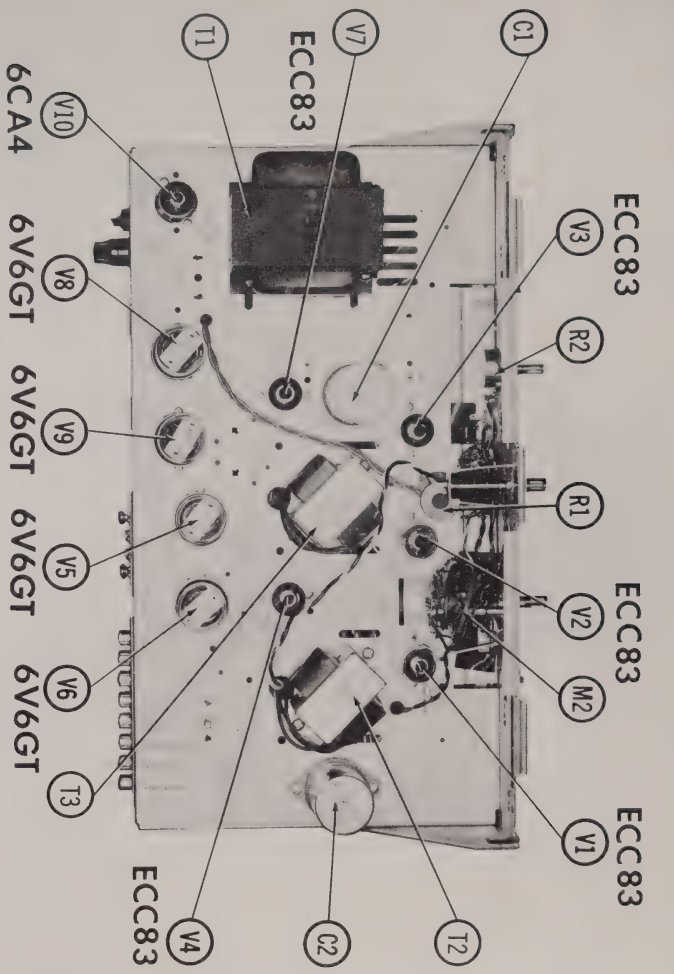
| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | 84A59 | With Indicator; Volume, Balance |
| Knob | 84A61 | Tone |
| Knob | 84A70 | Function Selector |
| Panel | 72D437 | Front |

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

## CHASSIS—TOP VIEW



PHOTOFACT® Folder

# DECCA MODELS
# DP-330, DP-331, DP-332, DP-650

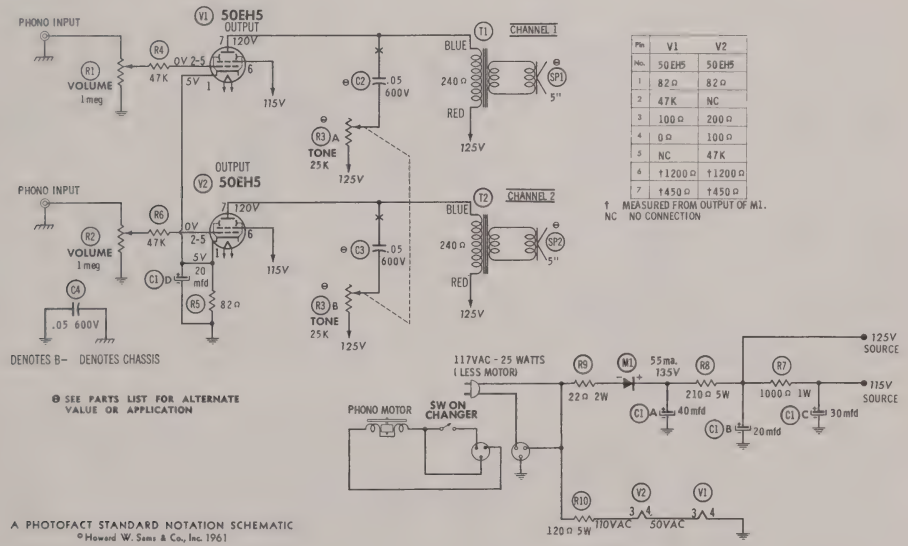
DECCA MODELS
DP-330, DP-331, DP-332, DP-650

MODEL DP-330

DECCA MODELS
DP-330, DP-331, DP-332, DP-650

| | |
|---|---|
| TRADE NAME | Decca Models DP-330, DP-331, DP-332, DP-650 |
| MANUFACTURER | Decca Distributing Corp., 445 Park Ave., New York 22, N. Y. |
| TYPE SET | AC Operated 2 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer |
| POWER SUPPLY | 110 – 120 Volts AC, 60 Cycles RATING 25 Watts, .25 Amp. @ 117 Volts AC (Less Motor) |

FOR SERVICE INFORMATION ON RECORD CHANGER PART #RC-44 – SEE MONARCH UA12 – PHOTOFACT SET 465 – FOLDER 6




| Pin No. | V1 | V2 |
|---|---|---|
| 1 | 82Ω | 82Ω |
| 2 | 47K | NC |
| 3 | 100Ω | 200Ω |
| 4 | 0Ω | 100Ω |
| 5 | NC | 47K |
| 6 | †1200Ω | †1200Ω |
| 7 | †450Ω | †450Ω |

† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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# PARTS LIST AND DESCRIPTIONS

## TUBES

• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •

| ITEM No. | USE | TYPE |
|---|---|---|
| V1 | Channel 1 Output | 50EH5 |
| V2 | Channel 2 Output | 50EH5 |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA DECCA PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | 40 | 150 | EC-121 | PR4-200 | BBRQ0174 | WQ230 | CDBQ-1001 | TVAS-4519 * | |
| B | 20 | 150 | | | | | | | |
| C | 30 | 150 | | | | | | | |
| D | 20 | 25 | | | | | | | |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C2 | .05 600V | Note 1 | P688N-05 | DD-503 | CUB6S5 | 6DP-3-503 | GEM-615 | 6TM-S50 |
| C3 | .05 600V | Note 1 | P688N-05 | DD-503 | CUB6S5 | 6DP-3-503 | GEM-615 | 6TM-S50 |
| C4 | .05 600V | | P688N-05 | DD-503 | CUB6S5 | 6DP-3-503 | GEM-615 | 6TM-S50 |

Note 1. Not used in Model DP-650.

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA DECCA PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 1meg | ½ | VC-118 | B-70 | A47-1meg-Z | Q13-137 | U53 | Volume, Channel 1 |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| R2A | 1meg | ½ | VC-118 | B-70 | A47-1meg-Z | Q13-137 | U53 | Volume, Channel 2 |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| R3A | 25K | ½ | VC-196 ① | B-26 | | | FA253L | Tone, Channel 1 |
| B | 25K | ½ | | SR-26 | | | RU253L | Tone, Channel 2 |
| C | Shaft | | | Not Req. | | | CS3500 | |

① Not used in Model DP-650.

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R4 | 47K | | | |
| R5 | 82Ω | | | |
| R6 | 47K | | | |
| R7 | 1000Ω 1W | | | |

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R8 | 210Ω 5W | PW5-210 | 5W-SQ-210 | |
| R9 | 220Ω 2W | | | |
| R10 | 120Ω 5W | PW5-120 | 5W-SQ-120 | |

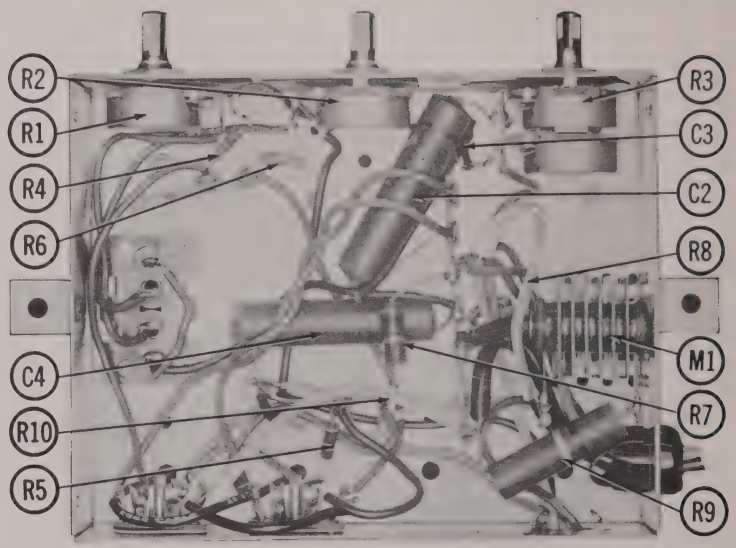
## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE PRI. | IMPEDANCE SEC. | REPLACEMENT DATA DECCA PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T1 | 2500Ω | 3-4Ω | AT-51 | A-3025 | A-3332 | 24S53 | S-12X | |
| T2 | 2500Ω | 3-4Ω | AT-51 | A-3025 | A-3332 | 24S53 | S-12X | |

## SPEAKER

| ITEM No. | TYPE SIZE | TYPE FIELD | TYPE V. C. IMP. | REPLACEMENT DATA DECCA PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 5" | PM | 3-4Ω | SPK-36 * | 5A07R | * Used in Models DP-330, DP-331, DP-332 |
| SP2 | 5" | PM | 3-4Ω | SPK-36 * | 5A07R | ♦ 2 Used in Model DP-650 |
| | 4" | PM | 3-4Ω | SPK-38 ♦ | 4A1 | |

# CHASSIS—BOTTOM VIEW




## POWER RECTIFIERS

| ITEM No. | RATING CURRENT (Measured) | REPLACEMENT DATA DECCA PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| M1 | .055A | SR-4 * | 1N1763 ♦ | 100 * | SR200 ♦ | * Selenium ♦ Silicon |

## PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

| ITEM No. | REPLACEMENT DATA DECCA PART No. CARTRIDGE | DECCA PART No. NEEDLE* | ASTATIC PART No. CARTRIDGE | ASTATIC PART No. NEEDLE* | ELECTRO-VOICE PART No. CARTRIDGE | ELECTRO-VOICE PART No. NEEDLE* | SONOTONE PART No. CARTRIDGE | SONOTONE PART No. NEEDLE* | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| M2 | PU-81 † | | 70TS | Not Req. | 96T | Not Req. | 12TH-S | Not Req. | † Model DP-650 uses Part #PU-46 |

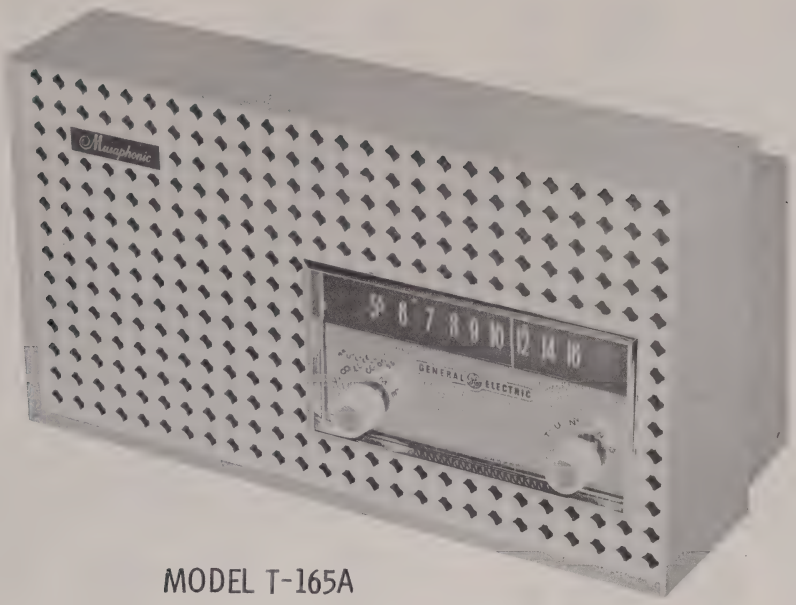
## WIRING DATA

| | |
|---|---|
| General-use Unshielded Hook-up Wire | Use BELDEN No. 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord | Use BELDEN No. 1765-B (6 Ft. Length)<br>1725-K (7½ Ft. Length) |
| Low-Loss Shielded Lead (Interconnecting) | Use BELDEN No. 8401 |
| Phono Pick-up Arm Cable | Use BELDEN No. 8430 (Two Conductor - Twisted) |

PHOTOFACT® Folder with CIRCUITRACE®

# GENERAL ELECTRIC MODELS T-165A, T-166A

GENERAL ELECTRIC
MODELS T-165A, T-166A




MODEL T-165A

GENERAL ELECTRIC
MODELS T-165A, T-166A

| | |
|---|---|
| TRADE NAME | General Electric Models T-165A, T-166A |
| MANUFACTURER | General Electric Co., Product Service, Radio Receiver Dept., 1001 Broad Street, Utica, N. Y. |
| TYPE SET | AC-DC Operated 5 Tube AM Receiver |
| POWER SUPPLY | 105 - 120 Volts AC-DC |
| TUNING RANGE—BROADCAST | 540 - 1600KC RATING 27 Watts, .26 Amp. @117 Volts AC |

## ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1 thru A4..... GENERAL CEMENT #9440
A5, A6..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | High side thru .1mfd to pin 7 (grid) of Converter. Low side to chassis. | 455KC (400~ Mod.) | Tuning gang fully open. | Across voice coil. | A1, A2, A3, A4 | Adjust for maximum output. |
| 2. | " | 1620KC | " | " | A5 | " |
| 3. | Loop | 1500KC | 1500KC Signal | " | A6 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output while rocking tuning gang |

DISASSEMBLY

1. Remove 4 hex head screws holding cabinet back to cabinet front. (2 in recessed hand grip, 2 on lower rear edge of cabinet.)
2. Pull out AC interlock and remove cabinet back.
3. Remove 4 hex head screws holding cabinet back to cabinet bottom.
4. Remove 2 screws holding volume control to cabinet front.
5. Remove screw holding antenna bracket to cabinet front.
6. Remove volume control knob.
7. Slide chassis from cabinet. (Tuning gang drum remains with cabinet front. When replacing, align shaft flat side with flat side of drum hole.)

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

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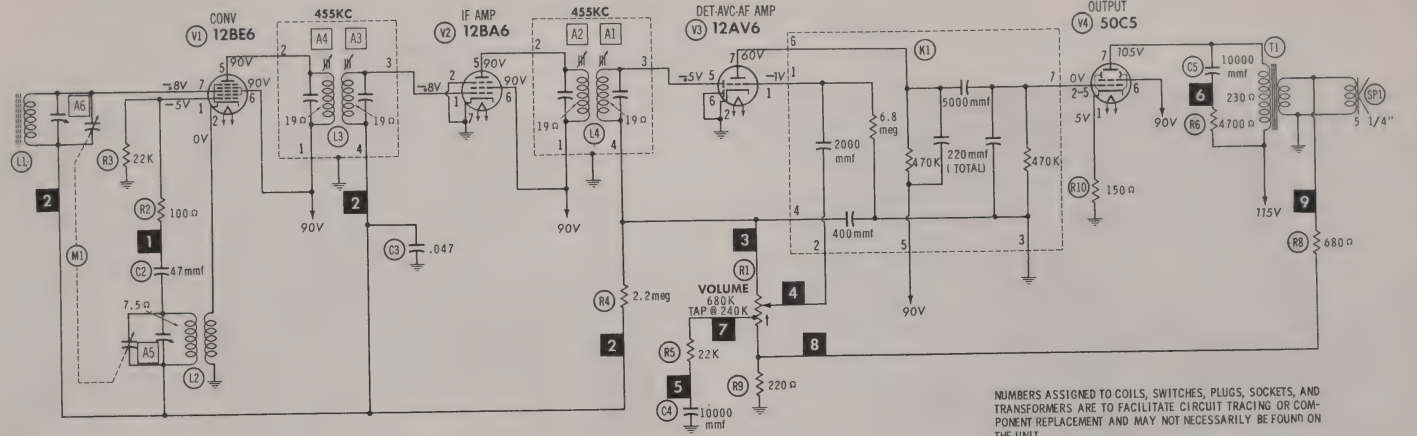
KG449



SET 536 FOLDER 7




C7 1000mmf
DENOTES B- DENOTES CHASSIS

2 3 1 4 LOCATING KEY
L2 TERMINAL GUIDE

2 3 1 4
L3 & L4 TERMINAL GUIDE

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

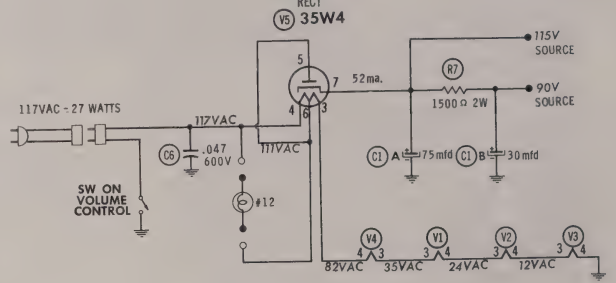
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| V1 | 12BE6 | 22K | .5Ω | 5Ω | 30Ω | †1500Ω | †1500Ω | 2.8meg |
| V2 | 12BA6 | 2.8meg | 0Ω | 30Ω | 15Ω | †1500Ω | †1500Ω | 0Ω |
| V3 | 12AV6 | 6.8meg | 0Ω | 15Ω | 0Ω | 680K | 0Ω | †470K |
| V4 | 50C5 | 150Ω | 470K | 45Ω | 120Ω | NC | †1500Ω | †230Ω |
| V5 | 35W4 | TP | TP | 120Ω | 180Ω | 175Ω | 175Ω | ¶ INF |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V5. NC NO CONNECTION TP TIE POINT




1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE®

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**GENERAL ELECTRIC**
**MODELS T-165A, T-166A**

# PARTS LIST AND DESCRIPTIONS

## TUBES

• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •

| ITEM No. | USE | TYPE |
|---|---|---|
| V1 | Converter | 12BE6 |
| V2 | IF Amplifier | 12BA6 |
| V3 | Det.-AVC-AF Amp. | 12AV6 |
| V4 | Output | 50C5 |
| V5 | Rectifier | 35W4 |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA G.E. PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | B 75 | 150 | RS-2060 | PR2-040 | BBRD8415 | PWD231 | TDLD-11 | TVA-2460 | |
| B | C 30 | 150 | | | | | | | |

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C2 | 47 | | DI-47 | DD-470 | L10Q47 | CCD-470 | GP447 | 10TS-Q47 |
| C3 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C4 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C5 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C6 | .047 600V | | P688N-047 | DD-503 | CUB6S47 | 6DP-3-473 | GEM-6147 | 6TM-S47 |
| C7 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-210 | 5HK-D10 | 5HK-D10 |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA G.E. PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 680K | ½ | RS-2650 | | | | | Volume |
| B | 240K Tap Switch | | | | | | | Push-Pull Off-On |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R2 | 100Ω | | | |
| R3 | 22K | | | |
| R4 | 2.2meg | | | |
| R5 | 22K | | | |
| R6 | 4700Ω | | | |
| R7 | 1500Ω 2W | | | |
| R8 | 680Ω | | | |
| R9 | 220Ω | | | |
| R10 | 150Ω | | | |

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | G.E. PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K1 | Audio Coupling | 220mmf, 400mmf, 2000mmf, 5000mmf, 470K, 470K, 6.8meg | RS-2045 | Aerovox Centralab PC-348 Sprague |

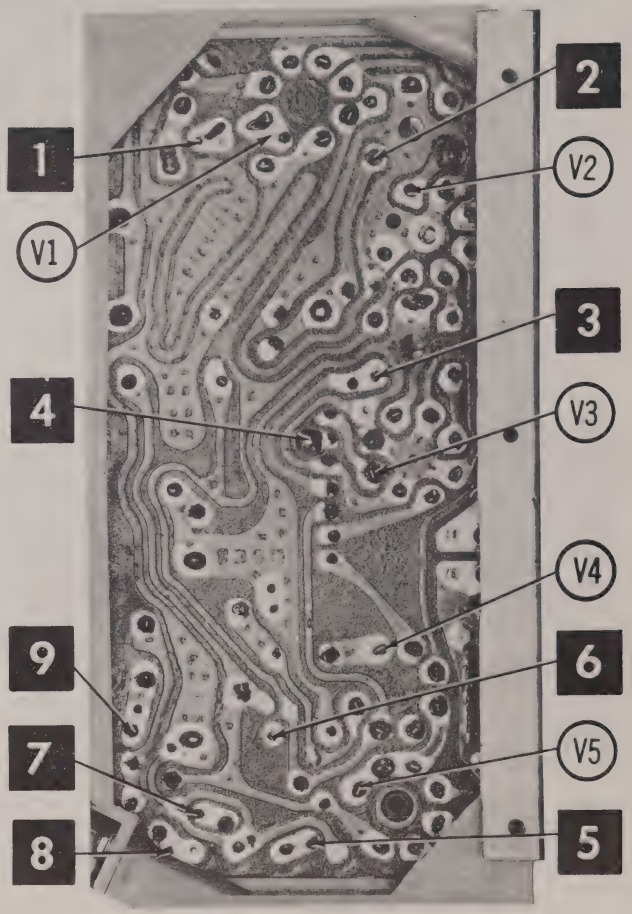
## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA G.E. PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| L1 | Loopstick | RS-2652 | BC-419 | 705-A | | T532 | |
| L2 | Osc. | RS-1437 | | | | | |
| L3 | Input IF | RS-2149 | BC-356 | J3-PC9 | RTC-8683 | T646 | |
| L4 | Output IF | RS-2149 | BC-357 | 13-PC10 | RTC-8684 | T647 | |

# PRINTED BOARD

A Howard W. Sams CIRCUITRACE* Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | G. E. PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 2400Ω | 3-4Ω | RS-1416 | A-3025① | A-3332① | 24S53① | S-12X① | ① Use Original Frame. |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | G. E. PART No. | QUAM PART No. | |
| SP1 | 5 1/4" | PM | 3-4Ω | RB-1186 | 52A1 * | * Drill new mounting holes. |

## MISCELLANEOUS

| ITEM No. | PART NAME | G. E. PART No. | NOTES |
|---|---|---|---|
| M1 | Tuning Cap. | RS-2651 | 2 Gang |

## CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

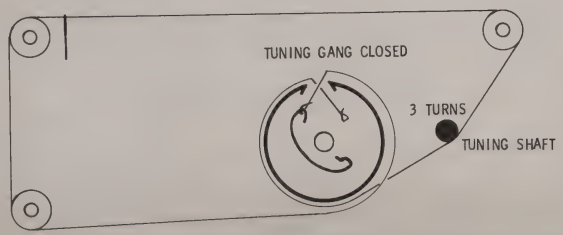
| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Crystal | RS-2637 | Dial |
| Pointer | RS-2648 | Dial |
| Knob | RS-2639 | Tuning |
| Knob | RS-2640 | Volume |
| Cabinet Front | RB-1170 | Blue, Model T-165A |
| Cabinet Back | RB-1172 | Blue, Model T-165A |
| Cabinet Front | RB-1171 | Mocha, Model T-166A |
| Cabinet Back | RB-1173 | Mocha, Model T-166A |

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

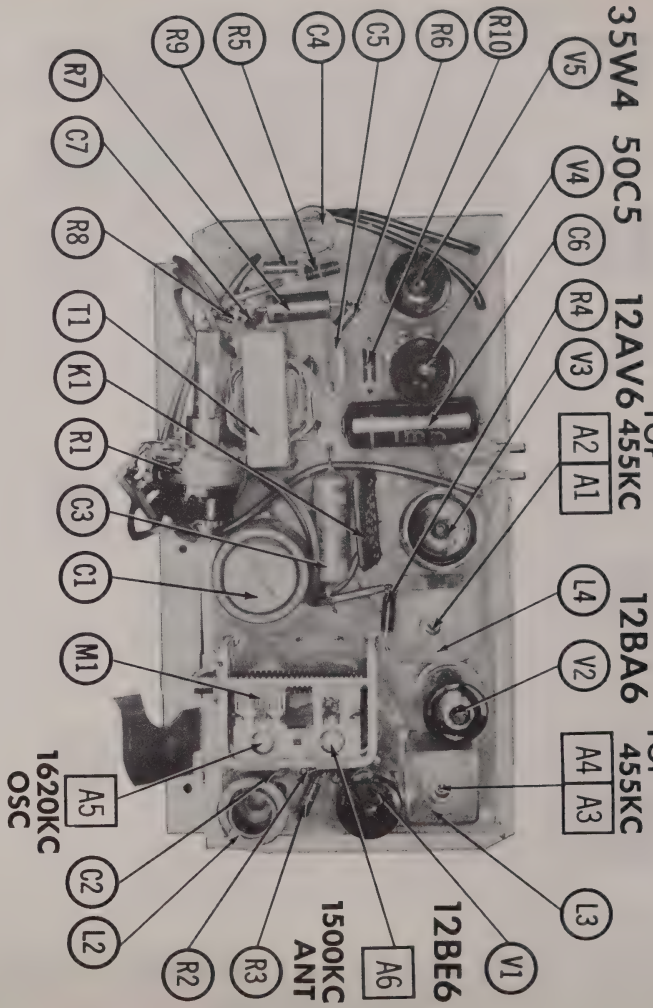
Power Cord (Interlock Type) ..... Use BELDEN No. 8874

## DIAL CORD STRINGING




FRONT VIEW

## CHASSIS—TOP VIEW



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**NORDMENDE**
**MODEL Mambo**

NORDMENDE
MODEL Mambo

NORDMENDE
MODEL Mambo

| | |
|---|---|
| TRADE NAME | Nordmende Model Mambo |
| IMPORTER | Sterling Hi-Fidelity, Inc., 22-14 40th Ave., Long Island City 1, N. Y. |
| TYPE SET | Battery Operated Transistorized Portable BC-LW Receiver |
| POWER SUPPLY | 9 Volts DC |
| TUNING RANGE—BROADCAST | 540 — 1600KC |
| LONG WAVE | 160-250KC |
| RATING | 15MA @ 9 Volts DC (No Signal, Min. Volume)<br>25MA @ 9 Volts DC (Signal, Normal Volume) |

# ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1 thru A7..... GENERAL CEMENT #9440
A8, A10, A11..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | High side thru 1KΩ and 5mmf in series to base of Converter. Low side to chassis. | 460KC (400% 30% AM). | (MW) Tuning gang fully open. | Across voice coil. | A1, A2, A3, A4, A5, A6 | Adjust for maximum output. |
| 2. | Loop | 550KC | 550KC | " | A7 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |
| 3. | " | 1500KC | 1500KC | " | A8 | Adjust for maximum output. Repeat Steps 2 and 3. |
| 4. | " | 550KC | 550KC | " | A9 | Adjust for maximum output. |
| 5. | " | 1500KC | 1500KC | " | A10 | Adjust for maximum output. Repeat Steps 4 and 5. |
| 6. | " | 210KC | (LW) 210KC | " | A11, A12 | Adjust for maximum output. |

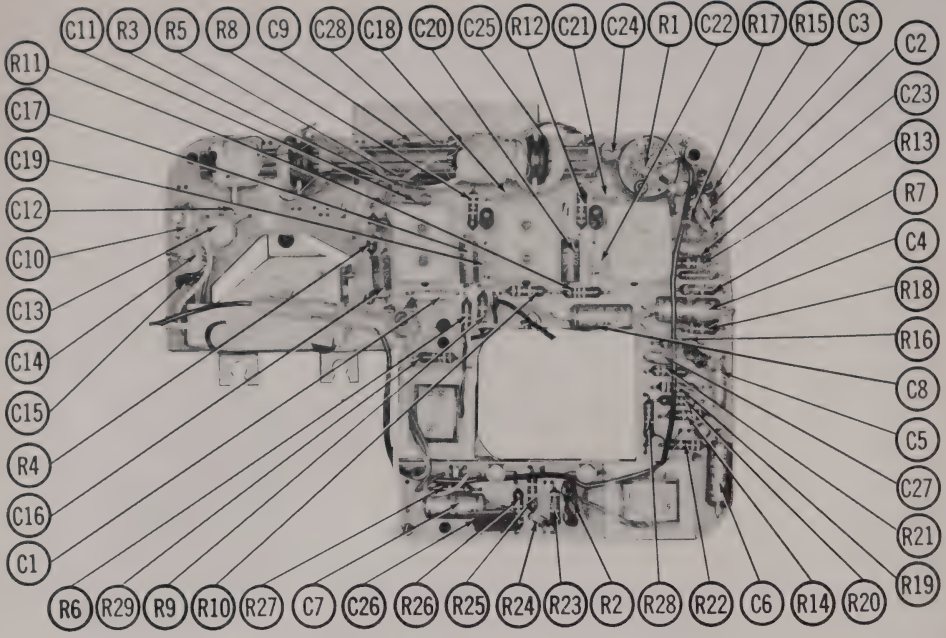
**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KF443

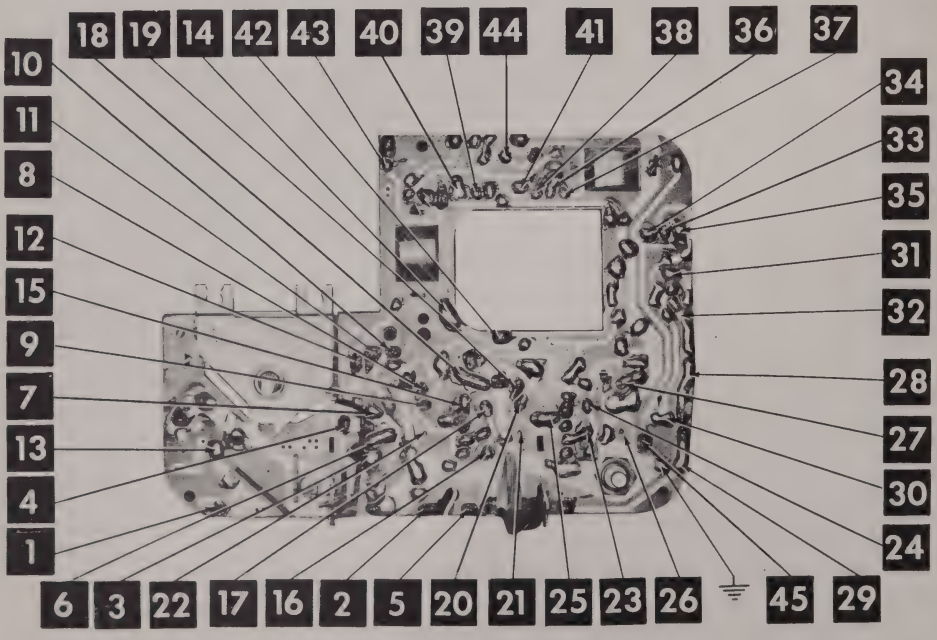
the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America



SET 536 FOLDER 8

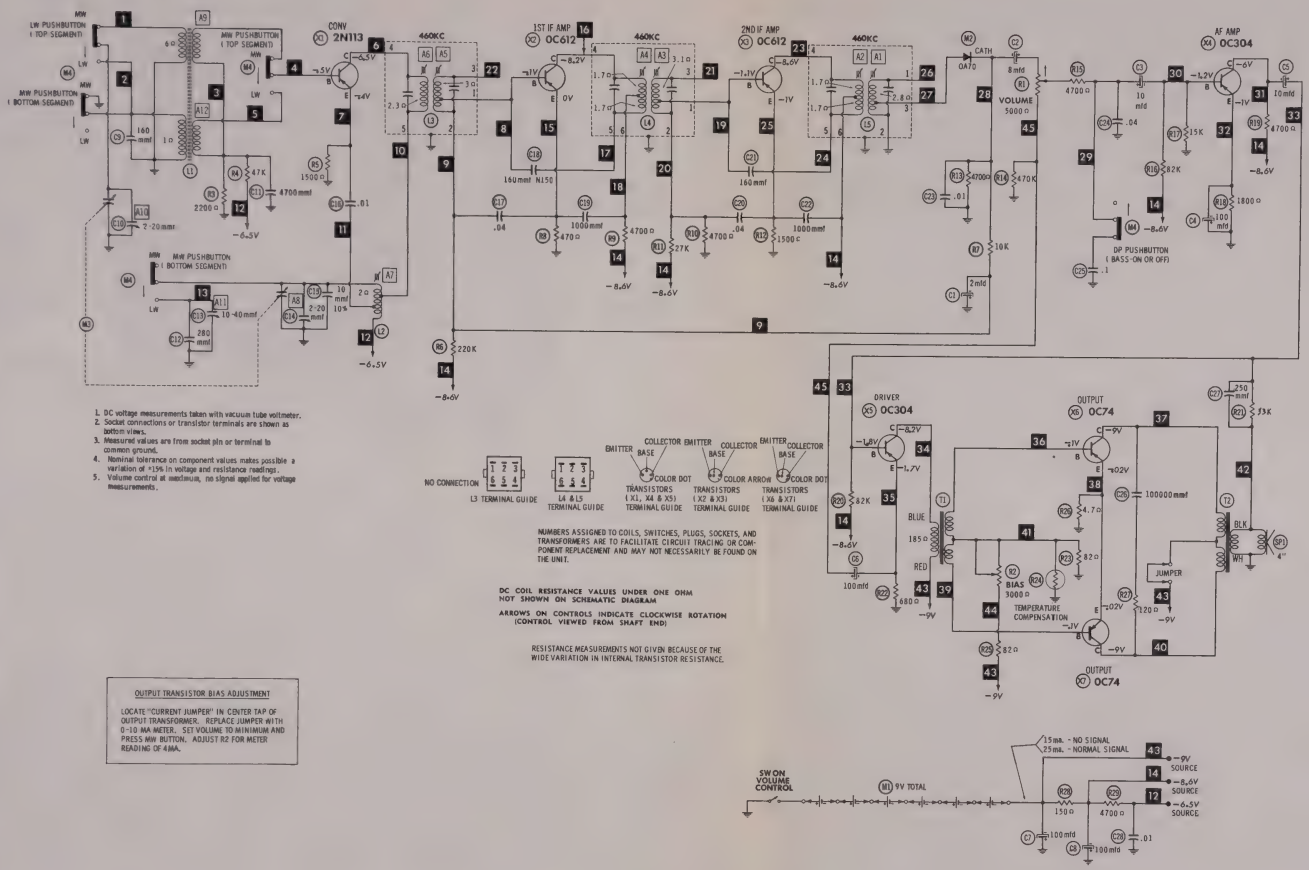



CHASSIS TOP VIEW-CAPACITOR & RESISTOR IDENT.




A Howard W. Sams CIRCUITRACE Photo

PRINTED BOARD




1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

NO CONNECTION

L3 TERMINAL GUIDE

L4 & L5 TERMINAL GUIDE

TRANSISTORS (X1, X4 & X5) TERMINAL GUIDE

TRANSISTORS (X2 & X3) TERMINAL GUIDE

TRANSISTORS (X6 & X7) TERMINAL GUIDE

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

OUTPUT TRANSISTOR BIAS ADJUSTMENT

LOCATE "CURRENT JUMPER" IN CENTER TAP OF OUTPUT TRANSFORMER. REPLACE JUMPER WITH 0-10 MA METER. SET VOLUME TO MINIMUM AND PRESS MW BUTTON. ADJUST R2 FOR METER READING OF 4 MA.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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**NORDMENDE**
**MODEL Mambo**

# PARTS LIST AND DESCRIPTIONS

## TRANSISTORS

| ITEM No. | ORIG. TYPE | USE | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|---|---|
| | | | RCA PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| X1 | 2N113 | Converter | 2N412 | | | PNP |
| X2 | OC612 | 1st IF Amplifier | 2N410 | | | PNP |
| X3 | OC612 | 2nd IF Amplifier | 2N410 | | | PNP |
| X4 | OC304 | AF Amplifier | 2N406 | | | PNP |
| X5 | OC304 | Driver | 2N406 | | | PNP |
| X6 | OC74 | Output | 2N408 | | | PNP |
| X7 | OC74 | Output | 2N408 | | | PNP |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | NORDMENDE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | |
| C1 | 2 | 3 | 443.041.19 | PTT-3002 | NLW2-50 | TT6X2 | MLV2-6 | TE-1051 | |
| C2 | 8 | 6 | | PTT-6008 | NLW8-10 | TT6X8 | MLV10-6 | TE-1086 | |
| C3 | 10 | 6 | 443.042.19 | PTT-6010 | NLW10-6 | TT6X10 | MLV10-6 | TE-1087 | |
| C4 | 100 | 3 | 443.040.15 | PTT-3100 | NLW100-3 | TT6X100 | MLV100-3 | TE-1059.5 | |
| C5 | 10 | 6 | 443.042.19 | PTT-6010 | NLW10-6 | TT6X10 | MLV10-6 | TE-1087 | |
| C6 | 100 | 3 | 443.040.15 | PTT-3100 | NLW100-3 | TT6X100 | MLV100-3 | TE-1059.5 | |
| C7 | 100 | 12 | 443.044.19 | PTT-12100 | NLW100-12 | TT15X100 | MLV100-12 | TE-1135 | |
| C8 | 100 | 12 | 443.044.19 | PTT-12100 | NLW100-12 | TT15X100 | MLV100-12 | TE-1135 | |

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C9 | 160 | | SI 150 | D6-151 | L10T15 | CCD-151 | B-315 | 10TS-T15 |
| C10 | 2-20 | #447.030.15 | | | | | | |
| C11 | 4700 | | SI 4700 | D6-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C12 | 280 | | SI 270 | D6-271 | L10T27 | CCD-271 | B-327 | 10TS-T27 |
| C13 | 10-40 | #447.005.15 | | | | | | |
| C14 | 2-20 | #447.030.15 | | | | | | |
| C15 | 10 10% | | SI 10 | D6-100 | L10Q1 | CCD-100 | GP410 | 10TS-Q10 |
| C16 | .01 150V | | P288N-01 | D6-103 | CUB4S1 | 4DP-1-103 | GEM-411 | 4TM-S10 |
| C17 | .04 150V | | P288N-04 | DD-403 | CUB6S4 | 4DP-3-403 * | GEM-414 | 4TM-S40 10TCP-T15 |
| C18 | 160 N150 | | | | | | | |
| C19 | 1000 | | SI 1000 | D6-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C20 | .04 150V | | P288N-04 | DD-403 | CUB6S4 | 4DP-3-403 | GEM-414 | 4TM-S40 |
| C21 | 160 | | SI 150 | D6-151 | L10T15 | CCD-151 | B-315 | 10TS-T15 |

## FIXED CAPACITORS (cont)

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C22 | 1000 | | SI 1000 | D6-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C23 | .01 150V | | P288N-01 | D6-103 | CUB4S1 | 4DP-1-103 | GEM-411 | 4TM-S10 |
| C24 | .04 150V | | P288N-04 | DD-403 | CUB6S4 | 4DP-3-403 | GEM-414 | 4TM-S40 |
| C25 | .1 150V | | P288N-1 | | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C26 | 100000 | | | DDA-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C27 | 250 | | SI 250 | D6-250 | L10T25 | CCD-251 | GP325 | 10TS-T25 |
| C28 | .01 150V | | P288N-01 | D6-103 | CUB4S1 | 4DP-1-103 | GEM-411 | 4TM-S10 |

# Nordmende Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | NORDMENDE PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | |
| R1A | 5000Ω | ½ | 402.116.14 | AB-11 | | | | Volume |
| B | Shaft | | | AK-29 | | | | |
| C | Switch | | | KR-2 | | | | Power Off-On |
| R2 | 3000Ω | ½ | 402.087.15 | | | | | Bias |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R3 | 2200Ω | | | | R17 | 15K | | | |
| R4 | 47K | | | | R18 | 1800Ω | | | |
| R5 | 1500Ω | | | | R19 | 4700Ω | | | |
| R6 | 220K | | | | R20 | 82K | | | |
| R7 | 10K | | | | R21 | 33K | | | |
| R8 | 470Ω | | | | R22 | 680Ω | | | |
| R9 | 4700Ω | | | | R23 | 82Ω | | | |
| R10 | 4700Ω | | | | R24 | Temp. Comp. | | | |
| R11 | 27K | | | | R25 | 82Ω | | | |
| R12 | 1500Ω | | | | R26 | 4.7Ω | | | |
| R13 | 4700Ω | | | | R27 | 120Ω | | | |
| R14 | 470K | | | | R28 | 150Ω | | | |
| R15 | 4700Ω | | | | R29 | 4700Ω | | | |
| R16 | 82K | | | | | | | | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | | NORDMENDE PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | |
| L1A | BC Loopstick | | | | | | |
| B | LW Loopstick | | | | | | |
| L2 | Osc. | | | | | | |
| L3 | 1st IF | 520.051.15 | | | | | |
| L4 | 2nd IF | 520.052.15 | | | | | |
| L5 | 3rd IF | 520.053.15 | | | | | |

## TRANSFORMER (DRIVER)

| ITEM No. | TURNS RATIO | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | NORDMENDE PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 2 | 1 | 522.007.13 | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | NORDMENDE PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 50Ω CT | 3-4Ω | 522.017.13 | | | | | |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | NORDMENDE PART No. | QUAM PART No. | |
| SP1 | 4" | PM | 3-4Ω | 470.012.14 | | |

## BATTERIES

| ITEM No. | VOLTAGE | NORDMENDE PART No. | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | | | BURGESS | | EVEREADY | | MALLORY | | |
| | | | "A" | "B" | "A" | "B" | "A" | "B" | |
| M1 | 1.5V | | | 130 | | 635 | | M-14R | 6 Required |

## SIGNAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | NORDMENDE PART No. | GENERAL ELECTRIC PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| M2 | 0A70 | 464.021.15 | | 1N60 | 1N60 | Detector (Pigtail) |

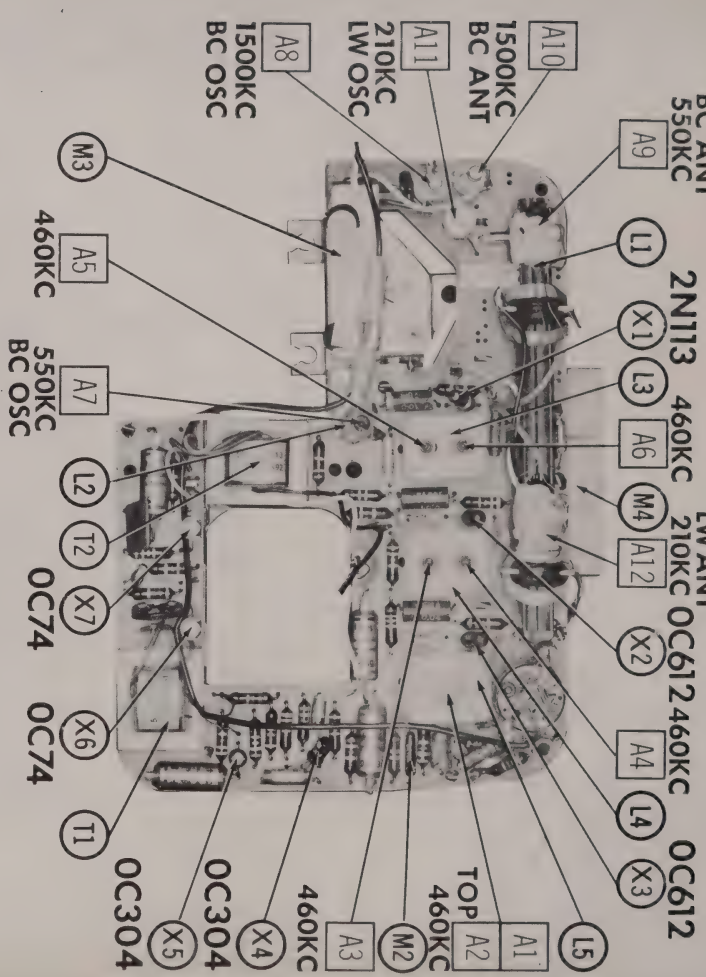
## MISCELLANEOUS

| ITEM No. | PART NAME | NORDMENDE PART No. | NOTES |
|---|---|---|---|
| M3 | Tuning Cap | 446.030.14 | 2 Gang |
| M4 | Switch | 472.033.13 | Function Selector, Pushbutton Type |

## WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

# CHASSIS—TOP VIEW



PHOTOFACT® Folder

**RCA MODEL
CRM-P3A-5**

RCA MODEL
CRM-P3A-5

RCA MODEL
CRM-P3A-5

| | |
|---|---|
| TRADE NAME | RCA Model Mark VII Radio Phone CRM-P3A—5<br>(AC-6Volt Models MI-555565-1, -2, -3, -4)<br>(AC-12Volt Models MI-555566-1, -2, -3, -4) |
| MANUFACTURER | Radio Corp. of America, Communication Products Dept., Radiomarine Marketing, Camden, N. J. |
| TYPE SET | AC-Battery Operated 7 Tube Crystal Controlled Citizens Band Transmitter-Receive |
| POWER SUPPLY | 110 — 120 Volts AC, 60 Cycles/ 6 Volt Storage Battery (or) 110-120 Volts AC, 60 Cycles/ 12Volt Storage Battery |
| RATING | 7.4 Amp. @6.3 Volts DC (Receive), 9 Amp. @6.3 Volts DC (Transmit) Or<br>3.7 Amp. @12.6 Volts DC (Receive), 4.5 Amp. @12.6 Volts DC (Transmit) Or<br>52 Watts, .5 Amp. @117 Volts AC |
| FREQ. RANGE | Any 4 of Citizens Band Channels 1 thru 23<br>Receiver is continuously tuneable when channel switch is in one of the "Tuneable" Channel positions. |

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED BY FCC ARE PERMITTED TO MAKE CRYSTAL SUBSTITUTION OR EFFECT REPAIRS ON THE TRANSMITTER PORTION OF THIS UNIT.

SET 536 FOLDER 9

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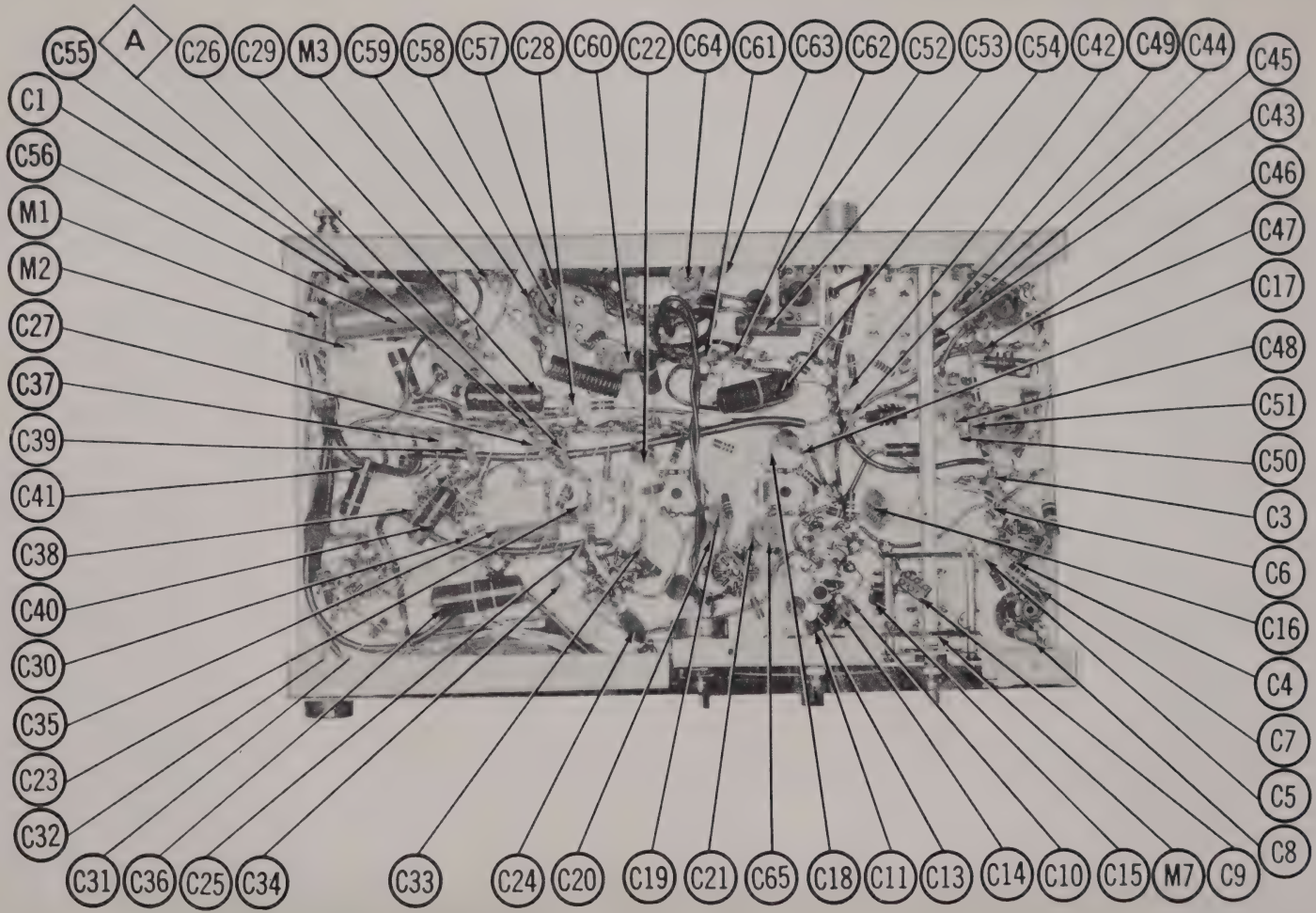
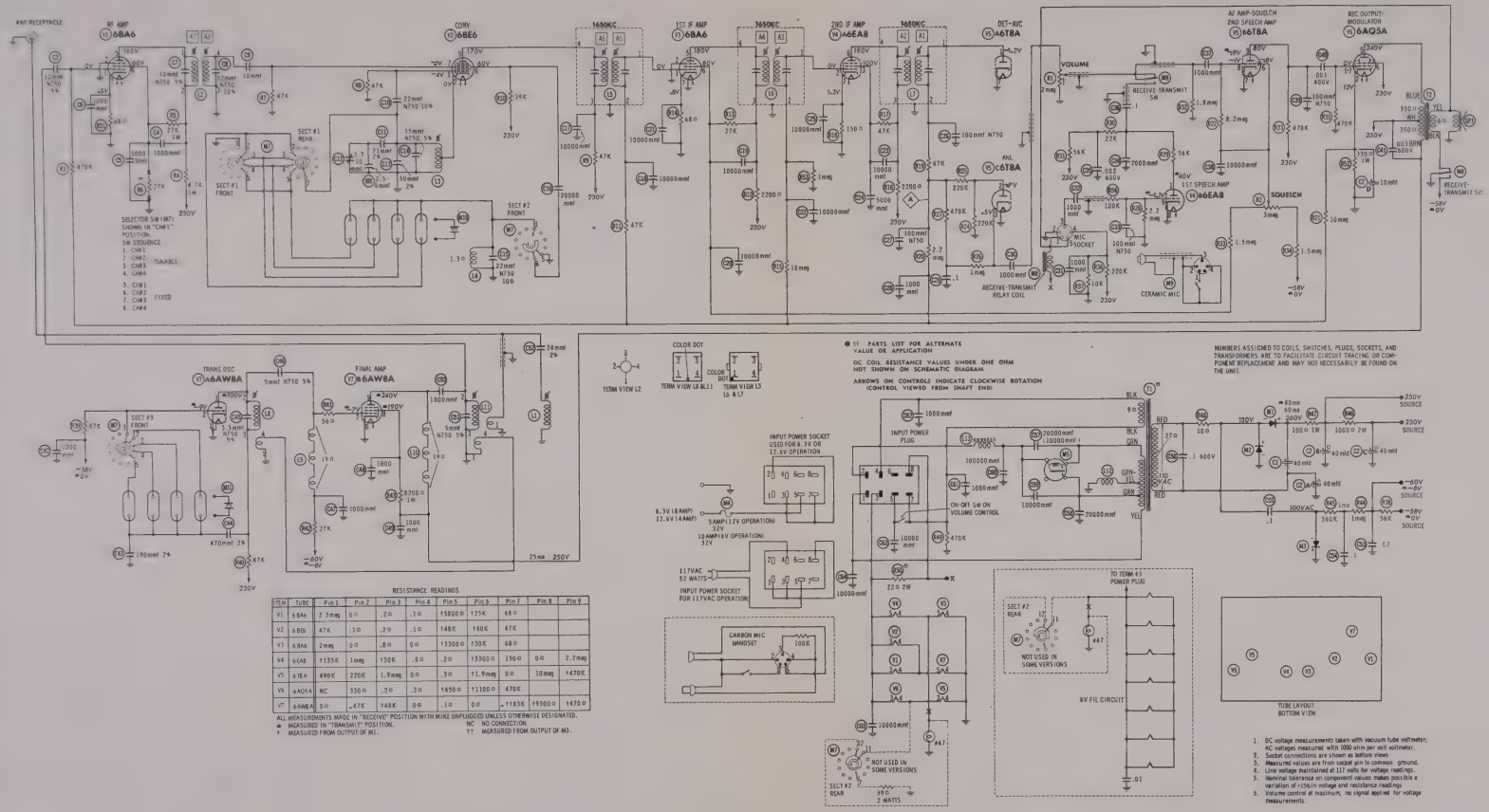



CHASSIS BOTTOM VIEW-CAPACITOR & MISC. IDENT.




RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 6BA6 | 2.3meg | 0Ω | .2Ω | .1Ω | 15800Ω | 125K | 68Ω | | |
| V2 | 6BE6 | 47K | .1Ω | .2Ω | .1Ω | 148K | 140K | 47K | | |
| V3 | 6BA6 | 2meg | 0Ω | .8Ω | 0Ω | †3300Ω | †30K | 68Ω | | |
| V4 | 6EA8 | †135K | 1meg | 150K | .8Ω | .2Ω | †3300Ω | 150Ω | 0Ω | 2.7meg |
| V5 | 6T8A | 490K | 220K | 1.9meg | 0Ω | .3Ω | †1.9meg | 0Ω | 10meg | †470K |
| V6 | 6AQ5A | NC | 330Ω | .2Ω | .3Ω | †450Ω | ††1100Ω | 470K | | |
| V7 | 6AW8A | 0Ω | .47K | 148K | 0Ω | .1Ω | 0Ω | ..1183K | †9300Ω | †470Ω |

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION WITH MIKE UNPLUGGED UNLESS OTHERWISE DESIGNATED.
* MEASURED IN "TRANSMIT" POSITION.
† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION
†† MEASURED FROM OUTPUT OF M3.

● ST PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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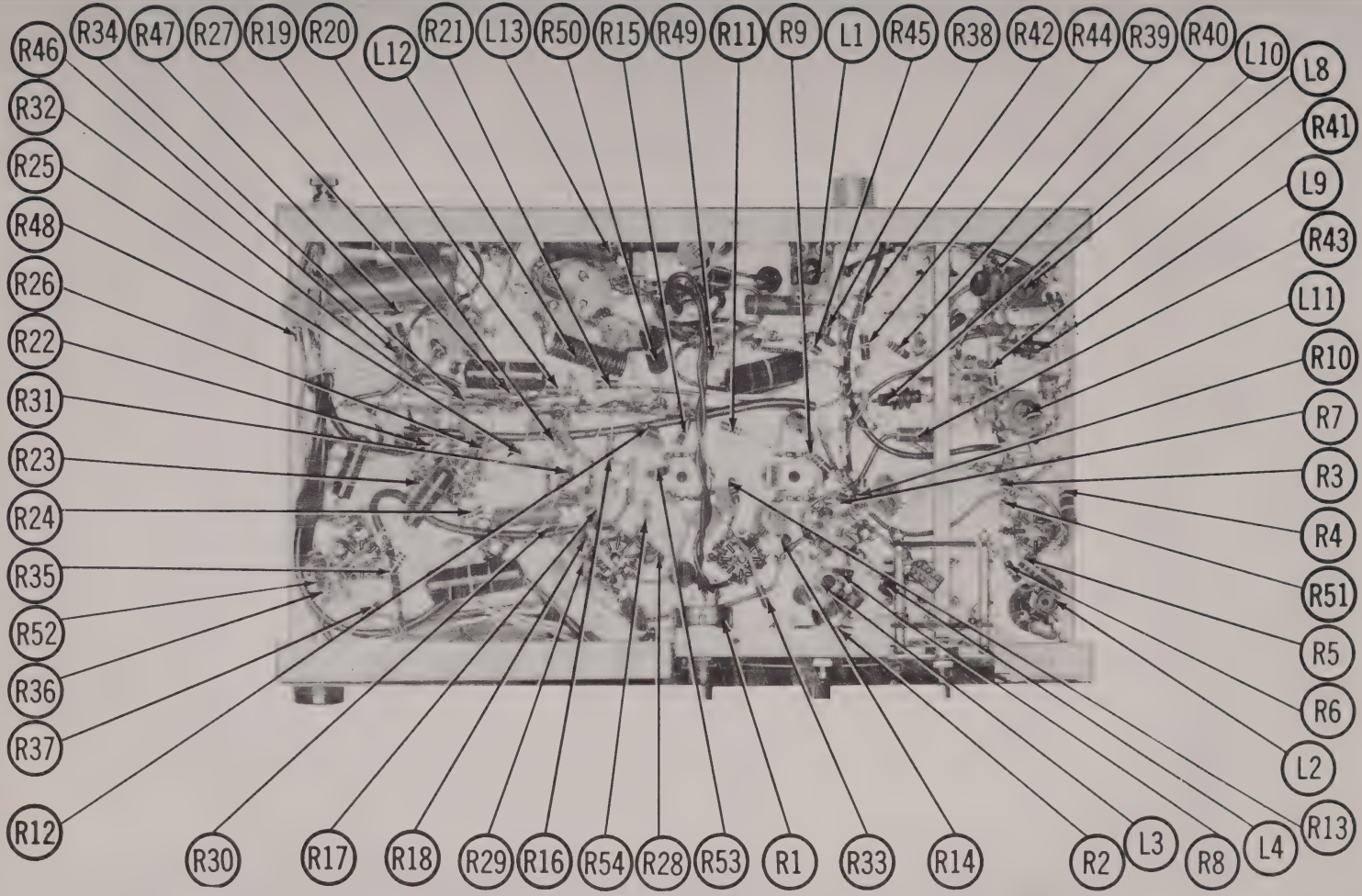
RCA MODEL CRM-P3A-5



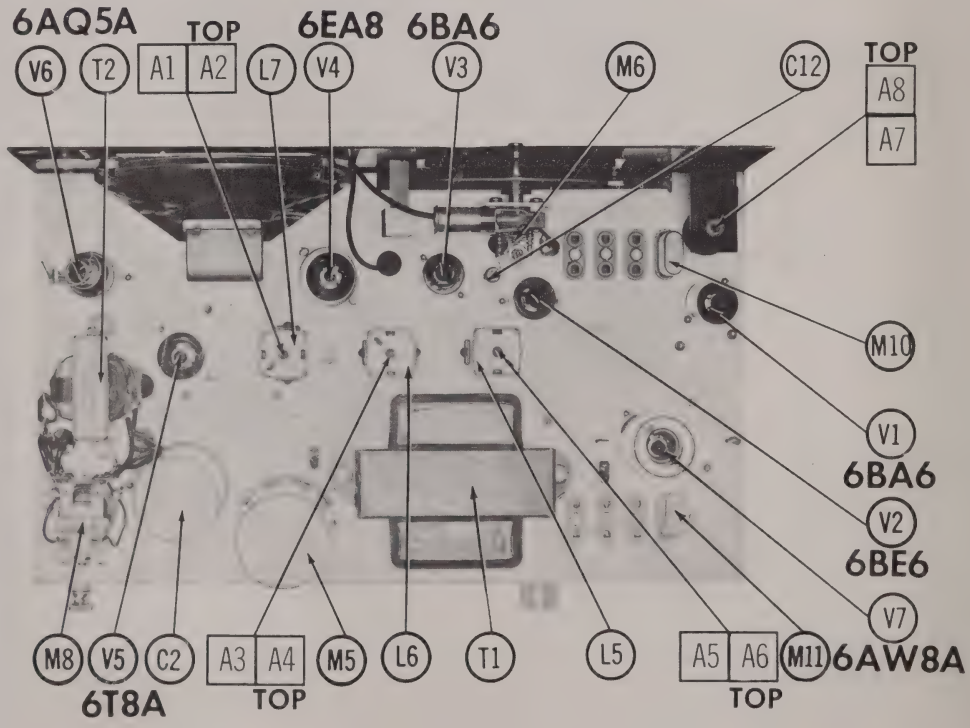

CHASSIS BOTTOM VIEW-RESISTOR & INDUCTOR IDENT.

# ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Generator output should not exceed 2 volts as indicated on VTVM during alignment.
Suggested Alignment Tools: A1 thru A6..... GENERAL CEMENT #5097, 8727
WALSCO #2515
A7, A8..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | High side thru .01mfd to pin 7 (grid) of Converter. Low side to chassis. | 1650KC (Unmod.) | | DC probe to point (A). Common to chassis. | A1, A2, A3, A4, A5, A6 | Adjust for maximum deflection. |
| 2. | Place generator output lead near receiver antenna. Use maximum output. | Frequency of channel receiver is set to operate on. | | " | A7 | Connect a 100Ω resistor and .005mfd capacitor in series across L2 Secondary. Adjust for maximum deflection |
| 3. | " | " | | " | A8 | Connect resistor and capacitor across L2 primary. Adjust for maximum deflection. Remove resistor and capacitor. |




CHASSIS—TOP VIEW

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
|---|---|---|---|---|---|
| V1 | RF Amplifier | 6BA6 | V5 | Det. -ANL-AVC-AF Amp. - 2nd Speech Amp. | 6T8A |
| V2 | Converter | 6BE6 | V6 | Rcvr. Output-Modulator | 6AQ5A |
| V3 | 1st IF Amplifier | 6BA6 | V7 | Trans. Osc. -Final Amp. | 6AW8A |
| V4 | 2nd IF Amplifier-1st Speech Amp. | 6EA8 | | | |

GENERAL ELECTRIC • RAYTHEON • SYLVANIA •

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA RCA PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1 | 40 | 200 | 219977 | PRS1580 | BR4025 | TC58 | TD-40-250 | TVA-1511 | |
| C2A | ▲40 | 200 | 219976 | | | | | TVLS-3639.14* | |
| B | ■40 | 350 | | | | | | TVA-1304 | |
| C | ▲40 | 350 | | | | | | | |
| D | 10 | 50 | | | | | | | |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C3 | 10 N750 5% | | N750-SI 10 | TCN-10 | C10Q10U | CCTN-100 | CN7-410 | 10TCU-Q10 |
| C4 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C5 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C6 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C7 | 10 N750 5% | | N750-SI 10 | TCN-10 | C10Q1U | CCTN-100 | CN7-410 | 10TCU-Q10 |
| C8 | 12 N750 5% | | | TCN-12 | C10Q12U | CCTN-120 | CN7-412 | 10TCU-Q12 |
| C9 | 10 | | 1468-00001 | TCZ-10 | 5W5Q1 | CM-19B-100M | MC215 | 1FM-41 |
| C10 | 22 N750 10% | | N750-SI 22 | TCN-22 | C10Q22U | CCTN-220 | CN7-422 | 10TCU-Q22 |
| C11 | 71 2% | #219999 | | | | | | |
| C12 | 1.5-10 | #219975 | | 829-10 | | | | |
| C13 | 50 2% | | | TCZ-50 | | CM-15E-500G | MCE225 | |
| C14 | 15 N750 5% | | N750-SI 15 | TCN-15 | C10Q15U | | CN7-415 | 10TCU-Q15 |
| C15 | 22 N750 10% | | N750-SI 22 | TCN-22 | C10Q22U | CCTN-220 | CN7-422 | 10TCU-Q22 |
| C16 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C17 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C18 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C19 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C20 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C21 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C22 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C23 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C24 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C25 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C26 | 100 N750 | | N750-SI 100 | TCN-100 | C10T1U | CCTN-101 | CN7-310 | 10TCU-T10 |
| C27 | 100 N750 | | N750-SI 100 | TCN-100 | C10T1U | CCTN-101 | CN7-310 | 10TCU-T10 |
| C28 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C29 | .1 200V | | P288N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C30 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C31 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C32 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C33 | 100 N750 | | N750-SI 100 | TCN-100 | C10T1U | CCTN-101 | CN7-310 | 10TCU-T10 |
| C34 | 2000 | | BPD-002 | DD-203 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C35 | .002 600V | | P688N-002 | D6-202 | CUB6D2 | 6DP-1-202 | GEM-621 | 6TM-D20 |
| C36 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C37 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C38 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C39 | 100 N750 | | N750-SI 100 | TCN-100 | C10T1U | CCTN-101 | CN7-310 | 10TCU-T10 |
| C40 | .001 600V | | P688N-001 | D6-102 | CUB6D1 | 6DP-1-102 | GEM-621 | 6TM-D10 |
| C41 | .003 600V | | P688N-003 | D6-302 | CUB6D3 | 6DP-1-302 | GEM-623 | 6TM-D30 |
| C42 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C43 | 190 2% | #219998 | | | | | | |

## FIXED CAPACITORS (cont)

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C44 | 470 2% | | | | | CM-15E-471G | MCE244 | |
| C45 | 3.3 N750 5% | | N750-SI 3.3 | TCN-3R3 | | | CN7-533 | 10TCU-V33 |
| C46 | 5 N750 5% | | N750-SI 5.0 | TCN-5 | C10V5U | CCTN-050 | CN7-550 | 10TCU-V50 |
| C47 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C48 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C49 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C50 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C51 | 5 N750 5% | | N750-SI 5.0 | TCN-5 | C10V5U | CCTN-050 | CN7-550 | 10TCU-V50 |
| C52 | 24 2% | | | TCZ-24 | | | MCE220 | |
| C53 | .02 200V | | P288N-02 | DD-203 | CUB4S2 | 4DP-2-203 | GEM-2022 | 2TM-S20 |
| C54 | .1 200V | | P288N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C55 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C56 | .1 600V | | P488N-1 | DF-104 | CUB6P1 | 6DP-4-104 | GEM-601 | 6TM-P10 |
| C57 | 20000 | (10000) † | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C58 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C59 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C60 | 100000 | | | | CUB2P1 | 1DP-2-104 | BT-010 | TH-P10 |
| C61 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C62 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C63 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C64 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C65 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |

# RCA Part Number.
† Alternate Value.

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA RCA PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 2meg | ½ | 219971 | B-76 | A47-2meg-Z | Q13-139 | U55 | Volume |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |
| C | Switch | | | KR-1 | SWE-12 | 76-1 | US-26 | Power Off-On |
| R2A | 3meg | ½ | 219972 | B-84 | A47-3meg-S | Q11-140 | U59 | Squelch |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |

## RESISTORS

**All wattages 1/2 watt, or less, unless otherwise listed.**

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R3 | 470K | | | |
| R4 | 4700Ω 1W | | | |
| R5 | 27K 1W | | | |
| R6 | 27K | | | Note 2 |
| R7 | 47K | | | |
| R8 | 47K | | | |
| R9 | 47K | | | |
| R10 | 39K | | | |
| R11 | 47K | | | |
| R12 | 2200Ω | | | |
| R13 | 27K | | | |
| R14 | 68Ω | | | |
| R15 | 10meg | | | |
| R16 | 2200Ω | | | |
| R17 | 47K | | | |
| R18 | 150Ω | | | |
| R19 | 47K | | | |
| R20 | 2.2meg | | | |
| R21 | 10meg | | | |
| R22 | 8.2meg | | | |
| R23 | 470K | | | |
| R24 | 220K | | | |
| R25 | 220K | | | |
| R26 | 1meg | | | |
| R27 | 470K | | | |

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R28 | 2.2meg | | | |
| R29 | 56K | | | |
| R30 | 22K | | | |
| R31 | 56K | | | |
| R32 | 1.8meg | | | |
| R33 | 1.5meg | | | |
| R34 | 1.5meg | | | |
| R35 | 470K | | | |
| R36 | 220K | | | |
| R37 | 10K | | | |
| R38 | 56K | | | |
| R39 | 47K | | | |
| R40 | 47K | | | |
| R41 | 56Ω | | | |
| R42 | 27K | | | |
| R43 | 8200Ω 1W | | | |
| R44 | 1meg | | | |
| R45 | 560K | | | |
| R46 | 1000Ω 2W | | | |
| R47 | 100Ω 1W | | | |
| R48 | 10Ω | | | |
| R49 | 470K | | | |
| R50 | 22Ω 2W | | | Note 1 |
| R51 | 68Ω | | | |
| R52 | 330Ω 1W | | | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS (cont)

| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R53 | 1meg | | | | R54 | 100K | | | |

Note 1. 6 volt versions use 5Ω in this application.
Note 2. Not used in some versions.

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | | RCA PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | |
| L1 | Ant. Loading | 219989 | | | | | |
| L2 | RF | 220251 | | | | | |
| L3 | Osc. | 219985 | | | | | |
| L4 | RF Choke (7.2uh) | 219983 | BC-565 | 4611 | RTC-8521 | T859 | |
| L5 | 1st IF | 219978 | | | | | |
| L6 | 2nd IF | 219978 | | | | | |
| L7 | 3rd IF | 219978 | | | | | |
| L8 | Osc. Plate | 219981 | | | | | |
| L9 | RF Choke (500uh) | 219988 | TV-204 | 6174 | RTC-8592 | T324 | |
| L10 | RF Choke (500uh) | 219988 | TV-204 | 6174 | RTC-8592 | T324 | |
| L11 | Final Plate | 219980 | | | | | |
| L12 | Hash Choke (10uh) | 219984 | | | | | |
| L13 | Hash Choke (30uh) | 219982 | | | | | |

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | RCA PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 117V ⓐ .5A or 12.6VCT ⓐ 2.5A | 110V ⓐ .290A | 12.6V ⓐ 1.5A (AC Only) | 219987 ① | | | | | ① Part #219986 used in 6 volt versions. |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | RCA PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 10K CT | 3-4Ω | 219990 | A-2938 | A-3850 | 24S05 | S-51X | |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | RCA PART No. | QUAM PART No. | |
| SP1 | 4" | PM | 3-4Ω | 79696-B | 4A05 | |

## POWER RECTIFIERS

| ITEM No. | RATING | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | CURRENT (Measured) | RCA PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | |
| M1 | .080A | 219973 * | 1N1763 * | 2F4 * | SR200 * | * Silicon Diode |
| M2 | .080A | 219973 * | 1N1763 * | 2F4 * | SR200 * | ♦ Selenium Diode |
| M3 | .001A | 218022 ♦ | | Model 10 ♦ | | |

## FUSES

| ITEM No. | TYPE | RATING | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | RCA PART No. | | LITTELFUSE PART No. | | BUSS PART No. | |
| | | | FUSE | HOLDER | FUSE | HOLDER | FUSE | HOLDER |
| M4 | 3AG | 5A 32V | | | 312005 (3AG 5A 32V) | | AGC 5 | |
| | 3AG | 10A 32V | | | 312010 (3AG 10A 32V) | | AGC 10 | |

## VIBRATOR

| ITEM No. | TYPE | INPUT VOLTS | FREQUENCY | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | | | | RCA PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | RADIART PART No. | |
| M5 | Interrupter | 12.6 | 115∿ | 220001 ♦ | | | | ♦ 12 Volt versions |
| | Interrupter | 6.3 | 115∿ | 220000 * | | | | * 6 Volt Versions. |

## MISCELLANEOUS

| ITEM No. | PART NAME | RCA PART No. | NOTES |
|---|---|---|---|
| M6 | Varible Cap | 219974 | 2.5 - 6mmf |
| M7 | Switch | 219991 | Selector (Includes Wafer #219992) Rotary Type |
| M8 | Relay | 219970 | Switching, 12 Volt |
| | | 219969 | Switching, 6 Volt |
| M9 | Microphone | 219994 | Includes 48" Cable & Connector |
| M10 | Crystal | MI-555583- * | Receive (Crystal is marked 019-002362- *) Replace * with Channel Number |
| M11 | Crystal | MI-555582- * | Transmit (Crystal is marked 019-002361- *) Replace * with Channel Number. |

## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Indicator | 219995 | Dial |
| Scale | 219996 | Tuning |
| Knob | 219966 | Tuning |
| Knob | 219968 | Volume, Channel, Squelch |
| Knob | 219967 | Handle Retaining |

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder with CIRCUITRACE®

# SILVERTONE
# MODEL 1A (Ch. 132.42003)

SILVERTONE
MODEL 1A (Ch. 132.42003)

SILVERTONE
MODEL 1A (Ch. 132.42003)

| | |
|---|---|
| TRADE NAME | Silvertone Model 1A (Ch. 132.42003) |
| SUPPLIER | Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois |
| TYPE SET | AC-DC Operated 4 Tube AM Receiver |
| POWER SUPPLY | 110 — 120 Volts AC, 60 Cycles RATING 26 Watts, .25 Amp. @117 Volts AC |
| TUNING RANGE—BROADCAST | 540 — 1600KC |

## ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A3, A6..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A4, A5..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | High side thru .05mfd to pin 7 (grid) of Converter. Low side to chassis. | 375KC (400% Mod.) | Tuning gang fully open. | Across voice coil. | A1, A2 | Adjust for maximum output. |
| 2. | High side to point (A) Low side to chassis. (Disconnect hank antenna). | 1670KC | " | " | A3 | " |
| 3. | " | 600KC | 600KC | " | A4, A5 | " |
| 4. | " | 1400KC | 1400KC Signal. | " | A6 | Adjust for maximum output while rocking tuning gang. |

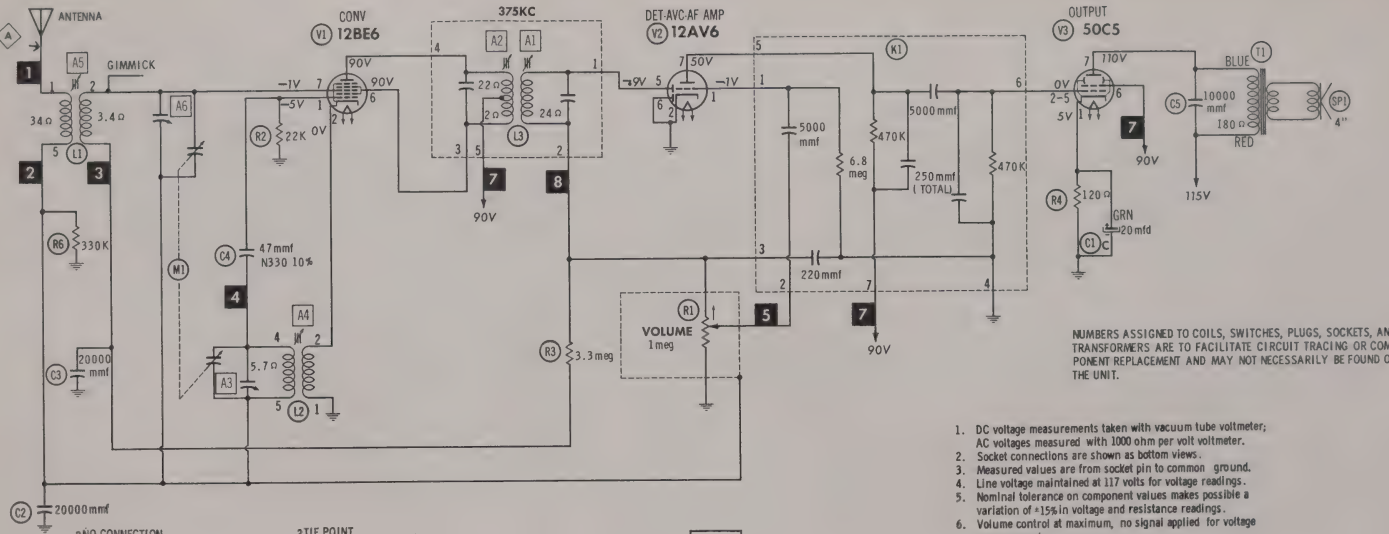
**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KG502



SET 536 FOLDER 10




NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| V1 | 12BE6 | 22K | .1Ω | 10Ω | 20Ω | †2200Ω | †2200Ω | 4.3meg |
| V2 | 12AV6 | 6.8meg | 0Ω | 10Ω | 0Ω | 1meg | 0Ω | †470K |
| V3 | 50C5 | 120Ω | NC | 67Ω | 110Ω | 470K | †2200Ω | †180Ω |
| V4 | 35W4 | TP | TP | 110Ω | 130Ω | 130Ω | 130Ω | ¶ INF |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V4. NC NO CONNECTION TP TIE POINT

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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**SILVERTONE**
**MODEL 1A (Ch. 132.42003)**

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ◆ GENERAL ELECTRIC ◆ | | | RAYTHEON ◆ | SYLVANIA ◆ | |
|---|---|---|---|---|---|
| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
| V1 | Converter | 12BE6 | V3 | Output | 50C5 |
| V2 | Det.-AVC-AF Amp. | 12AV6 | V4 | Rectifier | 35W4 |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | SILVERTONE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
| C1A | 50 | 150 | 44772-2 | PRS4500 | BBRT5315C | TCT3107 | TDLT-15 | TVA-3430 | |
| B | 20 | 150 | | | | | | | |
| C | 20 | 25 | | | | | | | |

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C2 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C3 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C4 | 47 N330 10% | | | | | | | 10TCS-Q47 |
| C5 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C6 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | SILVERTONE PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | |
| R1 | 1meg | ½ | 43613 | | | | | Volume & Switch |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA | | REMARKS |
|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | |
| R2 | 22K | | | |
| R3 | 3.3meg | | | |
| R4 | 120Ω | | | |

| ITEM No. | RATING | REPLACEMENT DATA | | REMARKS |
|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | |
| R5 | 2200Ω 1W | | | |
| R6 | 330K | | | |
| R7 | 47Ω 2W | | | |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | | SILVERTONE PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | |
| L1 | Ant. | 44132-1 | | | | | |
| L2 | Osc. | 43644-9 | | | | | |
| L3 | IF | 45467-1 | | | | | |

# PRINTED BOARD

A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | SILVERTONE PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 2500Ω | 3-4Ω | 42700-21 | A-3025 | A-3332 | 24S53 | S-12X | |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | SILVERTONE PART No. | QUAM PART No. | |
| SP1 | 4" | PM | 3-4Ω | 43096 | 4A07 | |

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | SILVERTONE PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K1 | Audio Coupling | 220mmf, 250mmf, 5000mmf, 5000mmf, 470K, 470K, 6.8meg | 43743-2 | Aerovox PA-512-3<br>Centralab PC-158<br>Sprague DT-5 |

## MISCELLANEOUS

| ITEM No. | PART NAME | SILVERTONE PART No. | NOTES |
|---|---|---|---|
| M1 | Tuning Cap. | 43614 | 2 Gang |

## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

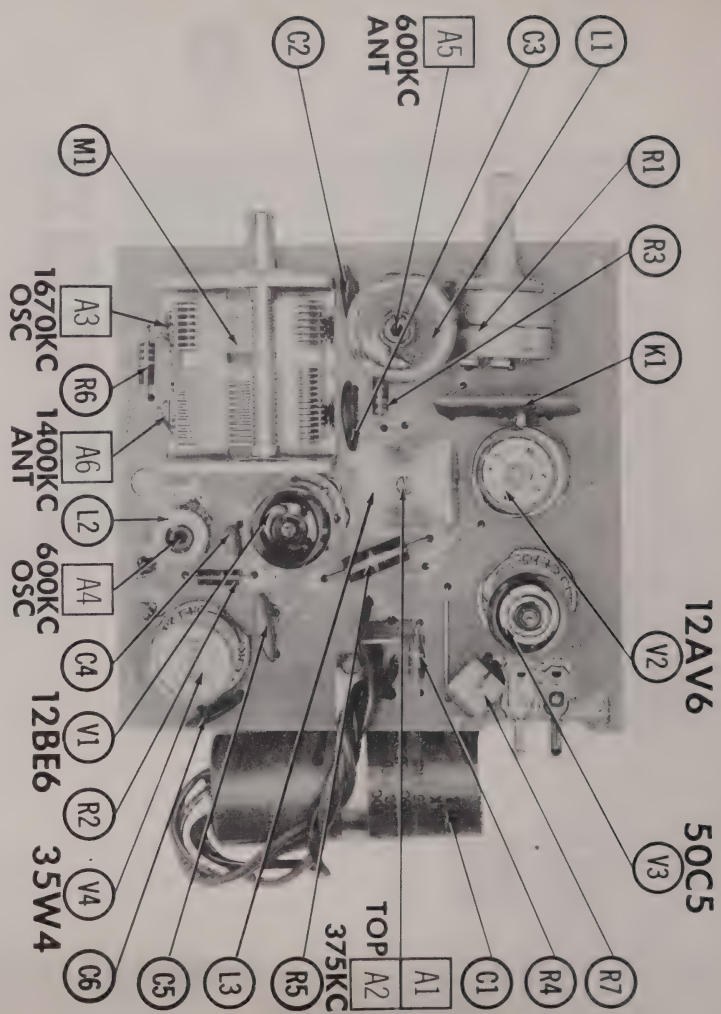
| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | 43626-49 | Tuning |
| Knob | 43625-49 | Volume |
| Cabinet | 49395-49 | Gray |

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord (Interlock Type) ..... Use BELDEN No. 8874

## CHASSIS—TOP VIEW



PHOTOFACT® Folder with CIRCUITRACE®

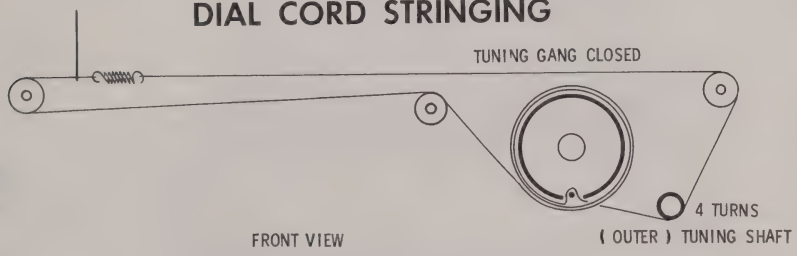
**SONY
MODEL TR-812**

SONY
MODEL TR-812

SONY
MODEL TR-812

| | | |
|---|---|---|
| TRADE NAME | Sony Model TR-812 | |
| IMPORTER | Sony Corp. of America, 514 Broadway, New York 12, N. Y. | |
| TYPE SET | Battery Operated Transistorized Portable BC-SW Receiver | |
| POWER SUPPLY | 6 Volts DC | RATING 15MA @ 6 Volts DC (No Signal, Min. Volume)<br>25MA @ 6 Volts DC (Signal, Normal Volume) |
| TUNING RANGES—BROADCAST | 535 - 1605KC | SHORT WAVE 1 2-6MC SHORT WAVE 2 6-18MC |

## DIAL CORD STRINGING



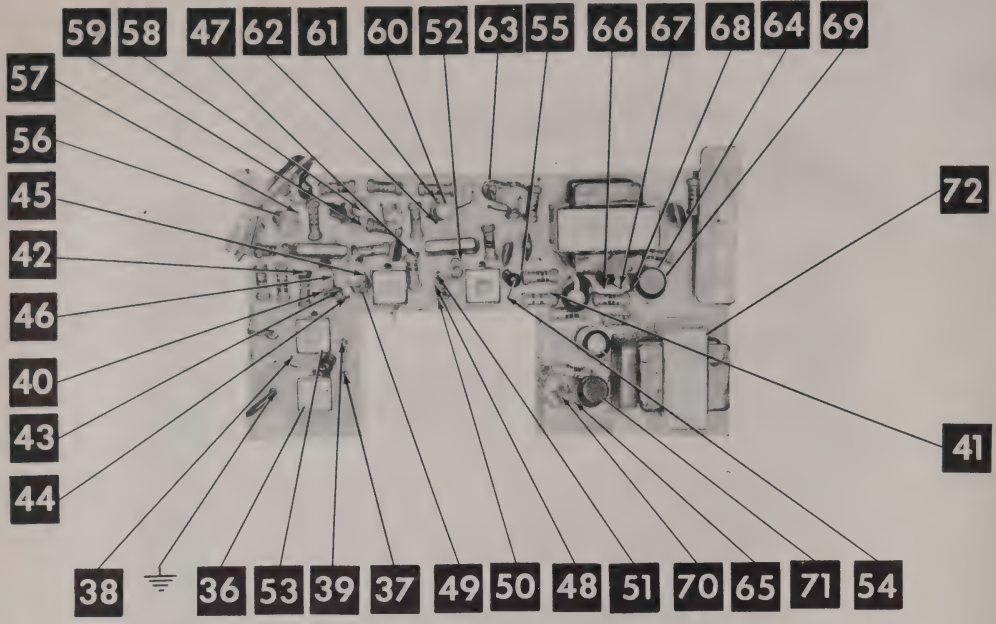

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KF425

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

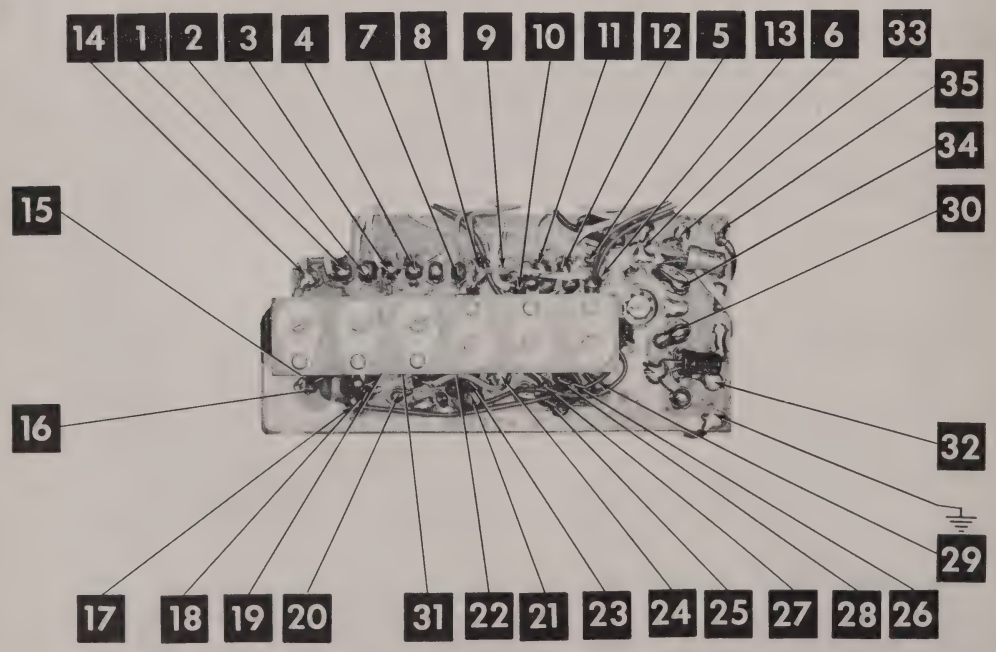


SET 536 FOLDER 11



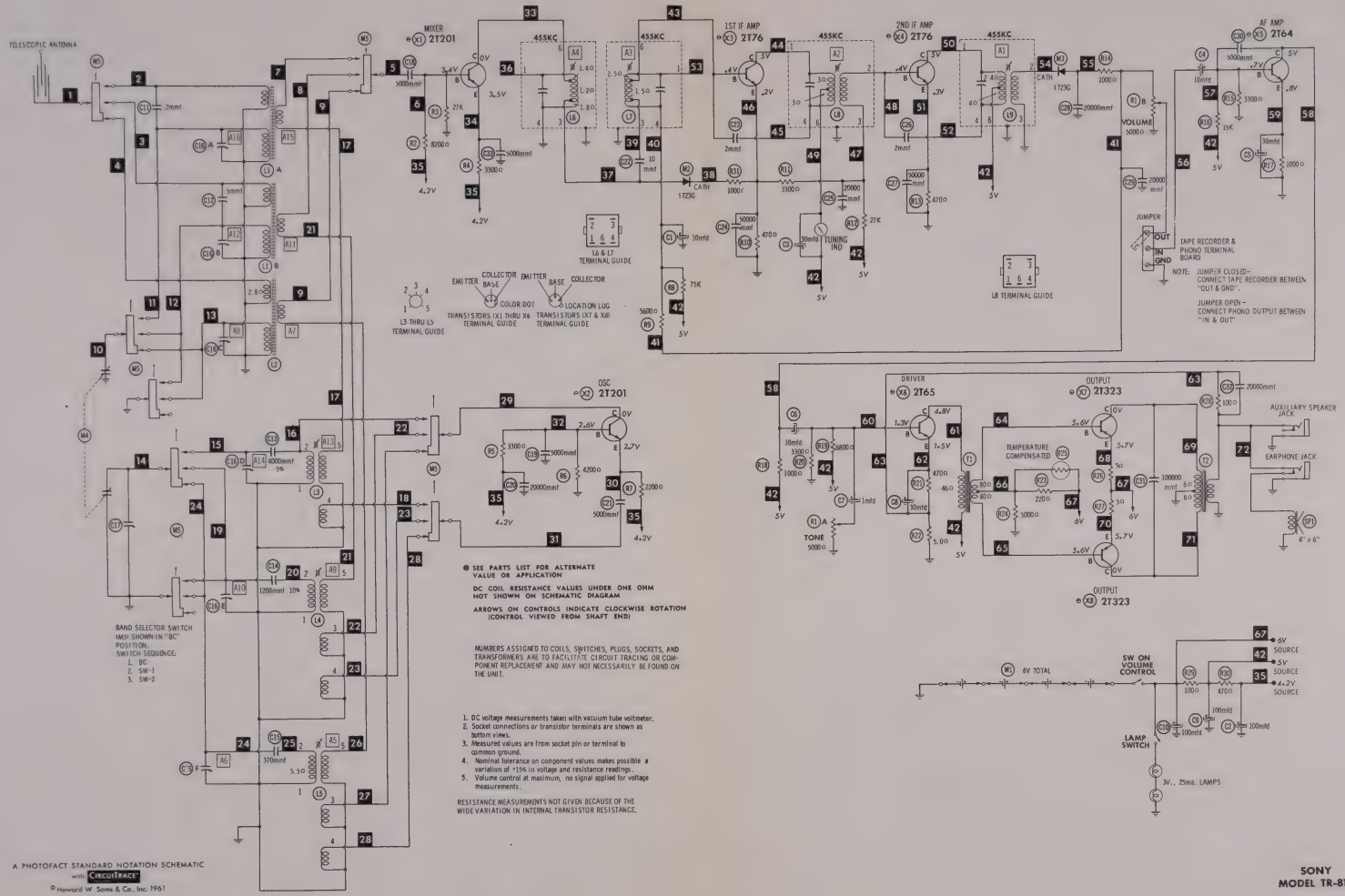

A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD




A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD


TELESCOPIC ANTENNA
MIXER X1 2T201
OSC X2 2T201
1ST IF AMP X3 2T76
2ND IF AMP X4 2T76
DRIVER X6 2T65
OUTPUT X7 2T323
OUTPUT X8 2T323
AF AMP X5 2T64
455KC
L6 & L7 TERMINAL GUIDE
L3 THRU L5 TERMINAL GUIDE
TRANSISTORS IX1 THRU X6 TERMINAL GUIDE
TRANSISTORS IX7 & X8 TERMINAL GUIDE
L8 TERMINAL GUIDE
COLOR DOT
LOCATION LUG
EMITTER
BASE
COLLECTOR
VOLUME
TONE
TUNING IND
JUMPER
TAPE RECORDER & PHONO TERMINAL BOARD
NOTE: JUMPER CLOSED— CONNECT TAPE RECORDER BETWEEN "OUT & GND".
JUMPER OPEN— CONNECT PHONO OUTPUT BETWEEN "IN & OUT"
AUXILIARY SPEAKER JACK
EARPHONE JACK
4" x 6"
TEMPERATURE COMPENSATED
BAND SELECTOR SWITCH
(MS) SHOWN IN "BC" POSITION.
SWITCH SEQUENCE:
1. BC
2. SW-1
3. SW-2
SW ON VOLUME CONTROL
M1 6V TOTAL
LAMP SWITCH
3V., 25ma. LAMPS
6V SOURCE
3V SOURCE
4.2V SOURCE
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.
RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.
A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE
© Howard W. Sams & Co., Inc. 1961
SONY
MODEL TR-812

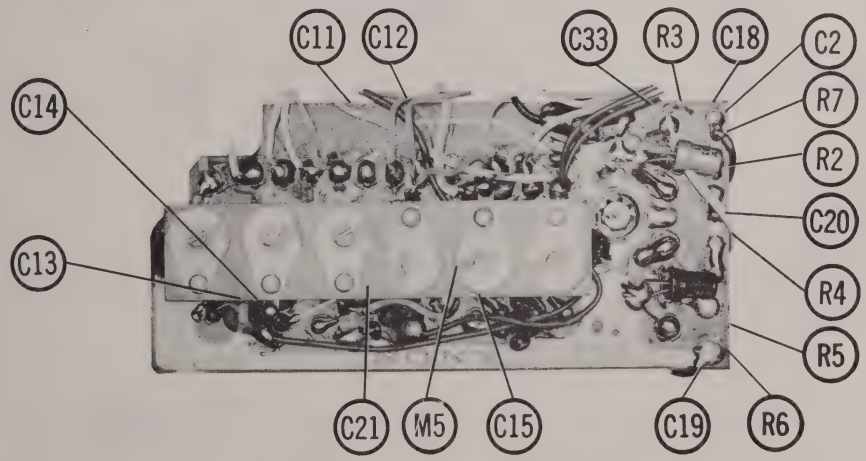
# ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1 thru A4..... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A6, A8, A10, A12, A14, A16..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

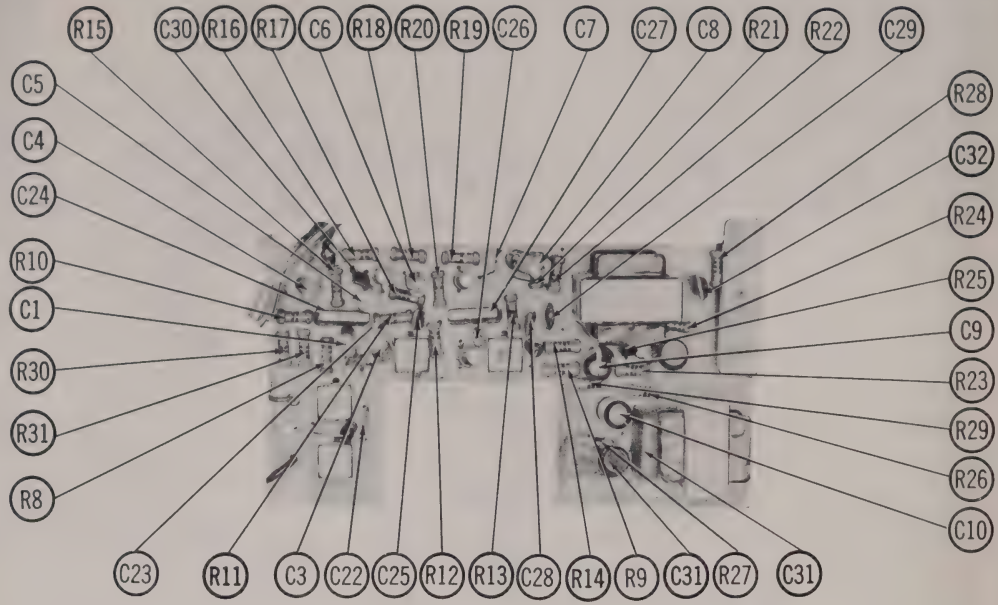
| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | Loop | 455KC (400~ Mod.) | (BC) Tuning gang fully open. | Across voice coil. | A1, A2, A3, A4 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |
| 2. | " | 520KC | Tuning gang fully closed. | " | A5 | " |
| 3. | " | 1680KC | Tuning gang fully open. | " | A6 | " |
| 4. | " | 620KC | 620KC Signal. | " | A7 | " |
| 5. | " | 1400KC | 1400KC Signal. | " | A8 | " |
| 6. | " | 1.85MC | (SW1) Tuning gang fully closed. | " | A9 | " |
| 7. | " | 6.3MC | Tuning gang fully open. | " | A10 | " |
| 8. | " | 2MC | 2MC Signal. | " | A11 | " |
| 9. | " | 6MC | 6MC Signal. | " | A12 | " |
| 10. | " | 5.85MC | (SW2) Tuning gang fully closed. | " | A13 | " |
| 11. | " | 18.5MC | Tuning gang fully open. | " | A14 | " |
| 12. | " | 6MC | 6MC Signal. | " | A15 | " |
| 13. | " | 18MC | 18MC Signal. | " | A16 | " |



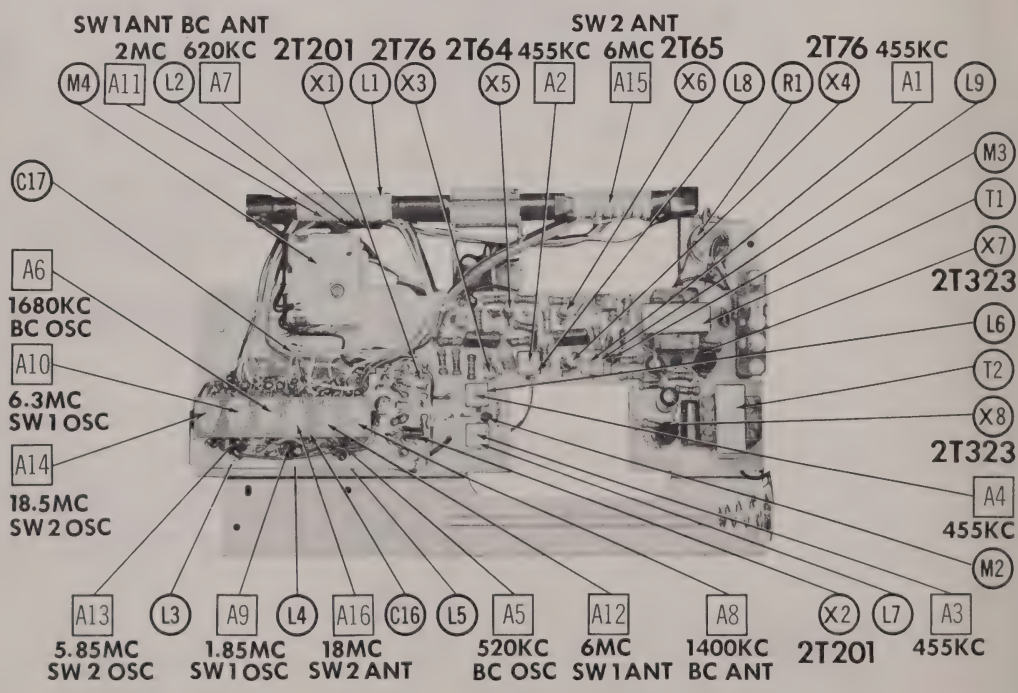

**RF SUBCHASSIS**

SONY MODEL TR-812

FOLDER 11




PRINTED BOARD-TOP VIEW




CHASSIS-TOP VIEW

# PARTS LIST AND DESCRIPTIONS

## TRANSISTORS

| ITEM No. | ORIG. TYPE | USE | REPLACEMENT DATA: RCA PART No. | RAYTHEON PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| X1 | 2T201 | Mixer | | | | PNP |
| | 2SA122* | Mixer | | | | PNP |
| X2 | 2T201 | Oscillator | | | | PNP |
| | 2SA122* | Oscillator | | | | PNP |
| X3 | 2T76 | 1st IF Amplifier | | | | NPN |
| | 2SC76* | 1st IF Amplifier | | | | |
| X4 | 2T76 | 2nd IF Amplifier | | | | NPN |
| | 2SC76* | 2nd IF Amplifier | | | | |
| X5 | 2T64 | AF Amplifier | | | 2N214 | NPN |
| | 2SD64 * | AF Amplifier | | | | |
| X6 | 2T65 | Driver | | | | NPN |
| | 2SD65* | Driver | | | | |
| X7 | 2T323 | Output | | | | PNP |
| | 2SB52* | Output | | | | |
| X8 | 2T323 | Output | | | | PNP |
| | 2SB52* | Output | | | | |

* Alternate

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING: CAP. | RATING: VOLT. | REPLACEMENT DATA: SONY PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1 | 10 | 6 | | PTT-6010 | NLW10-6 | TT6X10 | MLV10-6 | TE-1087 | |
| C2 | 100 | 6 | | PTT-6100 | NLW100-12 | TT6X100 | MLV100-6 | TE-1102 | |
| C3 | 30 | 6 | | PTT-6030 | NLW30-6 | TT6X30 | MLV30-6 | TE-1092 | |
| C4 | 10 | 6 | | PTT-6010 | NLW10-6 | TT6X10 | MLV10-6 | TE-1087 | |
| C5 | 30 | 6 | | PTT-6030 | NLW30-6 | TT6X30 | MLV30-6 | TE-1092 | |
| C6 | 10 | 6 | | PTT-6010 | NLW10-6 | TT6X10 | MLV10-6 | TE-1087 | |
| C7 | 1 | 6 | | PTT-6001 | NLW1-50 | TT12X1 | MLV1-150 | TE-1080 | |
| C8 | 30 | 6 | | PTT-6030 | NLW30-6 | TT6X30 | MLV30-6 | TE-1092 | |
| C9 | 100 | 6 | | PTT-6100 | NLW100-12 | TT6X100 | MLV100-6 | TE-1102 | |
| C10 | 100 | 6 | | PTT-6100 | NLW100-12 | TT6X100 | MLV100-6 | TE-1102 | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA: AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C11 | 2 | | NPO-SI 2.0 | TCZ-2R2 | C10V2C | CCTO-2R2 | CNO-522 | 10TCC-V22 |
| C12 | 5 | | NPO-DI 5.0 | DTZ-4R7 | C10V5C | CCTO-050 | CNO-547 | 10TCC-V50 |
| C13 | 4000 5% | | | | 1R5D4 | CM-20B-392J | MCE463 | MS-24 |
| C14 | 1200 10% | | | DD-122 | 5R5D12 | CCD-122 | GP212 | 10TS-D12 |
| C15 | 370 | | SI 390 | D6-391 | L10T39 | CCD-391 | B-391 | 10TS-T39 |
| C16A | | | | | | | | |
| B | | | | | | | | |
| C | | | | | | | | |
| D | | | | | | | | |
| E | | | | | | | | |
| F | | | | | | | | |
| C17 | | #CV-104 | | | | | | |
| C18 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C19 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C20 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C21 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C22 | 10 | | NPO-DI 10 | DTZ-10 | C10Q1C | CCTO-100 | CNO-410 | 10TCC-Q10 |
| C23 | 2 | | NPO-DI 2.0 | DTZ-2R2 | C10V2C | CCTO-2R2 | CNO-522 | 10TCC-V22 |
| C24 | 50000 | | BPD-05 | DD-503 | H-05S5 | DP-2-503 | GP150 | 5HK-S50 |
| C25 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C26 | 2 | | NPO-SI 2.0 | TCZ-2R2 | C10V2C | CCTO-2R2 | CNO-522 | 10TCC-V22 |
| C27 | 50000 | | BPD-05 | DD-503 | H-05S5 | DP-2-503 | GP150 | 5HK-S50 |
| C28 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C29 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C30 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C31 | 100000 | | C80V104AM | DDA-104 | H-05P1 | DP-2-104 | TA-010 | TG-P10 |

## FIXED CAPACITORS (cont)

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA: AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C32 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C33 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |

\# Sony Part Number.

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: SONY PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 5000Ω | 1/4 | | | | | | Tone |
| B | 5000Ω | 1/4 | | | | | | Volume & Switch |

## RESISTORS

**All wattages 1/2 watt, or less, unless otherwise listed.**

| ITEM No. | RATING | REPLACEMENT DATA: IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R2 | 8200Ω | | | |
| R3 | 27K | | | |
| R4 | 3300Ω | | | |
| R5 | 3300Ω | | | |
| R6 | 4200Ω | | | |
| R7 | 2200Ω | | | |
| R8 | 75K | | | |
| R9 | 5600Ω | | | |
| R10 | 470Ω | | | |
| R11 | 3300Ω | | | |
| R12 | 27K | | | |
| R13 | 470Ω | | | |
| R14 | 1000Ω | | | |
| R15 | 3300Ω | | | |
| R16 | 15K | | | |

| ITEM No. | RATING | REPLACEMENT DATA: IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R17 | 1000Ω | | | |
| R18 | 1000Ω | | | |
| R19 | 6800Ω | | | |
| R20 | 3300Ω | | | |
| R21 | 470Ω | | | |
| R22 | 5.0Ω | | | |
| R23 | 220Ω | | | |
| R24 | 5000Ω | | | |
| R25 | Temp. Comp. | | | Pt. #S-250 |
| R26 | 5.0Ω | | | |
| R27 | 5.0Ω | | | |
| R28 | 100Ω | | | |
| R29 | 100Ω | | | |
| R30 | 470Ω | | | |
| R31 | 1000Ω | | | |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA: SONY PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| L1A | SW 1 Loopstick | LA-049-1B | | | | | |
| B | SW 2 Loopstick | | | | | | |
| L2 | BC Loopstick | LA-048-1B | | | | | |
| L3 | SW 2 Osc. | LO-035-AQ | | | | | |
| L4 | SW 1 Osc. | LO-034-AQ | | | | | |
| L5 | BC Osc. | LO-031-AQ | | | | | |
| L6 | 1st IF | LI-019-DP | | | | | |
| L7 | 2nd IF | LI-019-EP | | | | | |
| L8 | 3rd IF | LI-008-BP | | | | | |
| L9 | 4th IF | LI-008-CP | | | | | |

## TRANSFORMER (DRIVER)

| ITEM No. | TURNS RATIO: PRI. | TURNS RATIO: SEC. | REPLACEMENT DATA: SONY PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T1 | .9 | 1 | TI-018 ① | | | | | ① Alternate Part #TI-081 |

# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | SONY PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 160Ω CT | 6-8Ω | TX-022 | | | | | |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | SONY PART No. | QUAM PART No. | |
| SP1 | 4"x 6" | PM | 6-8Ω | D-628SB | 46A07Z8 | |

## BATTERIES

| ITEM No. | VOLTAGE | SONY PART No. | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | | | BURGESS | | EVEREADY | | MALLORY | | |
| | | | "A" | "B" | "A" | "B" | "A" | "B" | |
| M1 | 1.5V | UM-1 * | | 230 * | | A-100 * | | M-13R * | * 4 Required |

## SIGNAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | SONY PART No. | GENERAL ELECTRIC PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| M2 | 1T23G | | | 1N60 | 1N60 | Overload - AVC (Pigtail) |
| M3 | 1T23G | | | 1N60 | 1N60 | Detector (Pigtail) |

## MISCELLANEOUS

| ITEM No. | PART NAME | SONY PART No. | NOTES |
|---|---|---|---|
| M4 | Tuning Cap. | CV-026-02 | 2 Gang |
| M5 | Switch | SC-045 | Band Selector (Slide Type) |

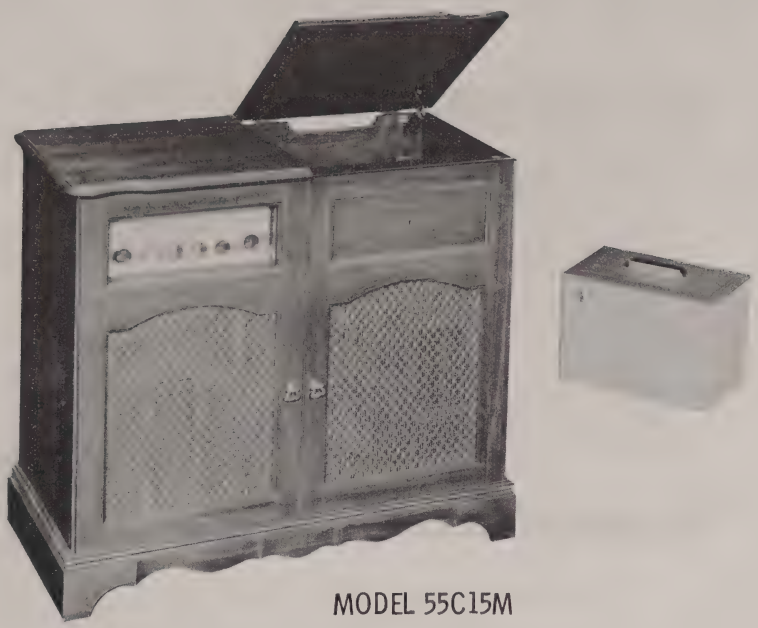
## WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

PHOTOFACT® Folder

# SYLVANIA MODELS 55C15B, F, M (Ch. 650-1, 1-634-1)

SYLVANIA MODELS 55C15B, F, M (Ch. 650-1, 1-634-1)



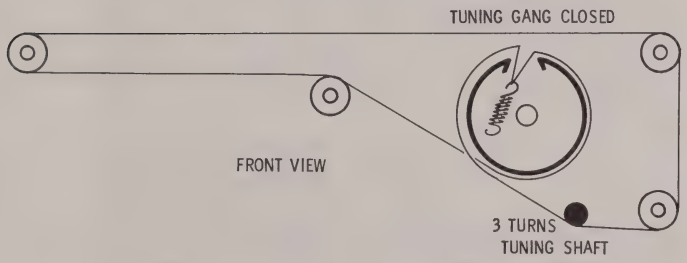
MODEL 55C15M

SYLVANIA MODELS 55C15B, F, M (Ch. 650-1, 1-634-1)

| | | | |
|---|---|---|---|
| TRADE NAME | Sylvania Model 55C15B, 55C15F, 55C15M (Tuner Ch. 650-1, Amp. Ch. 634-2) | | |
| MANUFACTURER | Sylvania Home Electronics, Div. of Sylvania Electric Products, Inc., 700 Ellicott Street, Batavia, N. Y. | | |
| TYPE SET | AC Operated 7 Tube FM-AM Tuner, 8 Tube Stereo Amplifier and 4 Speed Automatic Record Changer | | |
| POWER SUPPLY | 110 – 120 Volts AC, 60 Cycles | RATING | 120 Watts, 1 Amp. @117 Volts AC (Amp.)<br>26 Watts, .27 Amp. @117 Volts AC (Tuner) |
| TUNING RANGE—BROADCAST | 540 – 1650KC | FREQ. MOD. | 88 – 108MC |

FOR SERVICE INFORMATION ON RECORD CHANGER 1-319-1 – SEE SIMILAR V-M 1201 – PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12

## DIAL CORD STRINGING




**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KN321

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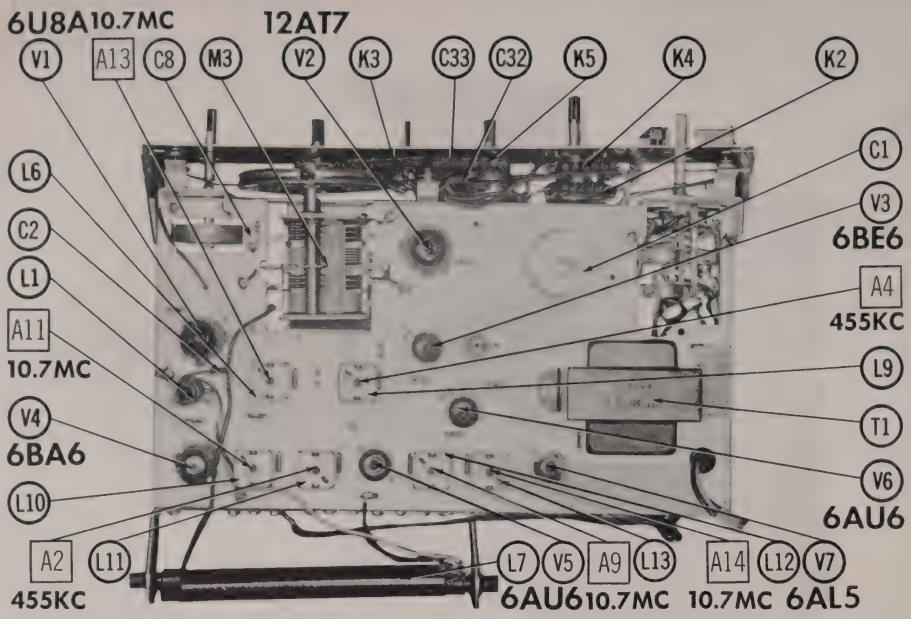
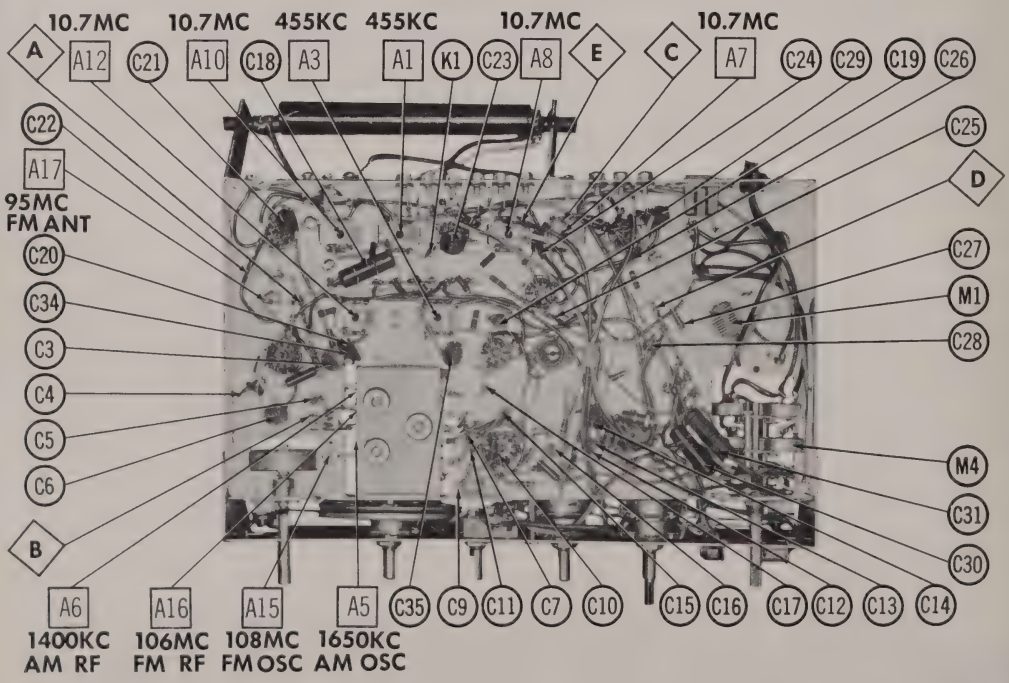
SET 536 FOLDER 12




TUNER CHASSIS - TOP VIEW




TUNER CHASSIS BOTTOM VIEW-ALIGNMENT, CAPACITOR & MISC. IDENT.

# ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loudness control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:

| | |
|---|---|
| A1 Thru A4 and A7 Thru A14.. | GENERAL CEMENT #5097, 8727<br>WALSCO #2515 |
| A5, A6, A16..... | GENERAL CEMENT #5004, 5008, 5009<br>WALSCO #2520 |
| A15..... | GENERAL CEMENT #8721, 8722<br>WALSCO #2519 |
| A17..... | GENERAL CEMENT #5003, 8271, 8275, 8276, 8609, 8721, 8722, 9150, 9298<br>WALSCO #2516, 2518, 2519 |

AM ALIGNMENT – SELECTOR IN AM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | High side thru .01mfd to pin 7 (grid) of AM Converter. Low side to chassis. | 455KC (400∿ AM Mod.) | (AM) Tuning gang fully open. | DC probe to point Ⓐ. Common to chassis. | A1, A2, A3, A4 | Adjust for maximum deflection. |
| 2. | Loop | 1650KC | 1650KC | " | A5 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |
| 3. | " | 1400KC | 1400KC | " | A6 | " |

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 4. | High side to point Ⓑ. Low side to chassis. | 10.7MC (Unmod.) | (FM) Point of non-interference. | DC probe thru 1meg to point Ⓒ. Common to chassis. | A7, A8, A9, A10, A11, A12, A13 | Adjust for maximum deflection. |
| 5. | " | " | " | DC probe to point Ⓓ. Common to chassis. | A14 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE – SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 4. | High side to point Ⓑ. Low side to chassis. | 10.7MC (450KC Swp) | (FM) Point of non-interference. | Vert. amp. thru 47K to point Ⓒ. Low side to chassis. | A7, A8, A9, A10, A11, A12, A13 | Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. |
| 5. | " | " | " | Vert. amp. to point Ⓓ. Low side to chassis. | A14 | Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A7 for maximum amplitude and striaghtness of crossover lines. |

FM RF ALIGNMENT—SELECTOR IN FM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 6. | Across FM antenna terminals with 120Ω in each lead. | 108MC (Unmod.) | (FM) 108MC | DC probe to point Ⓔ. Common to chassis. | A15 | Adjust for maximum deflection. |
| 7. | " | 106MC | 106MC | " | A16 | Adjust for maximum deflection while rocking tuning gang. |
| 8. | " | 95MC | 95MC | " | A17 | Adjust for maximum deflection. |

FIG. 1

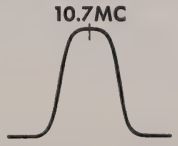
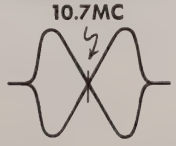
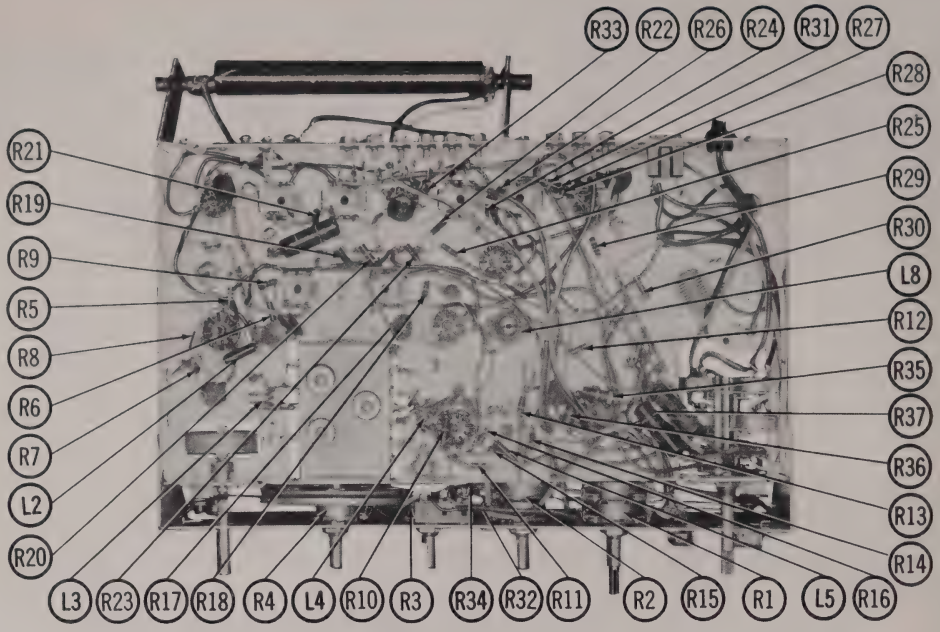
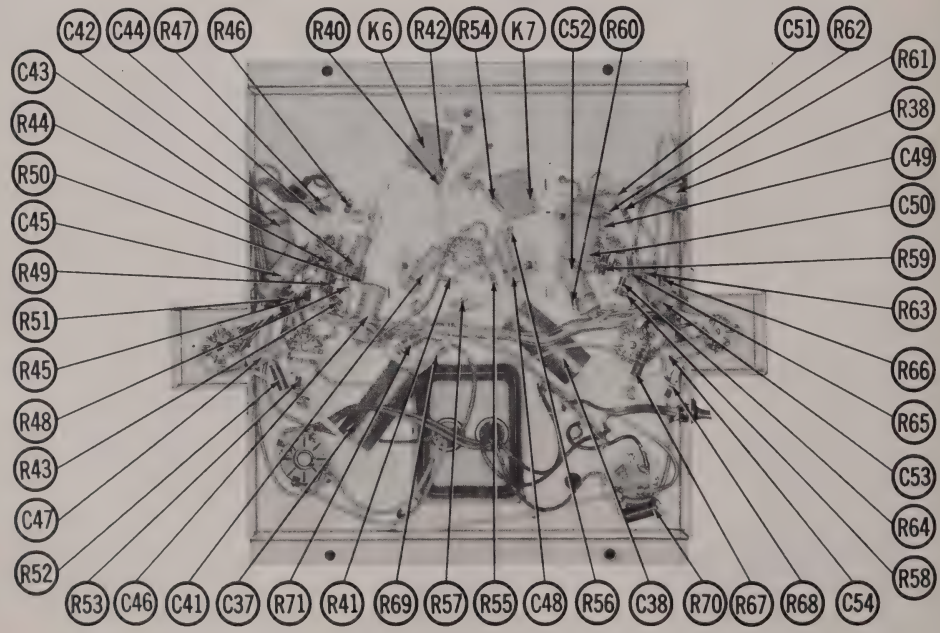



FIG. 2

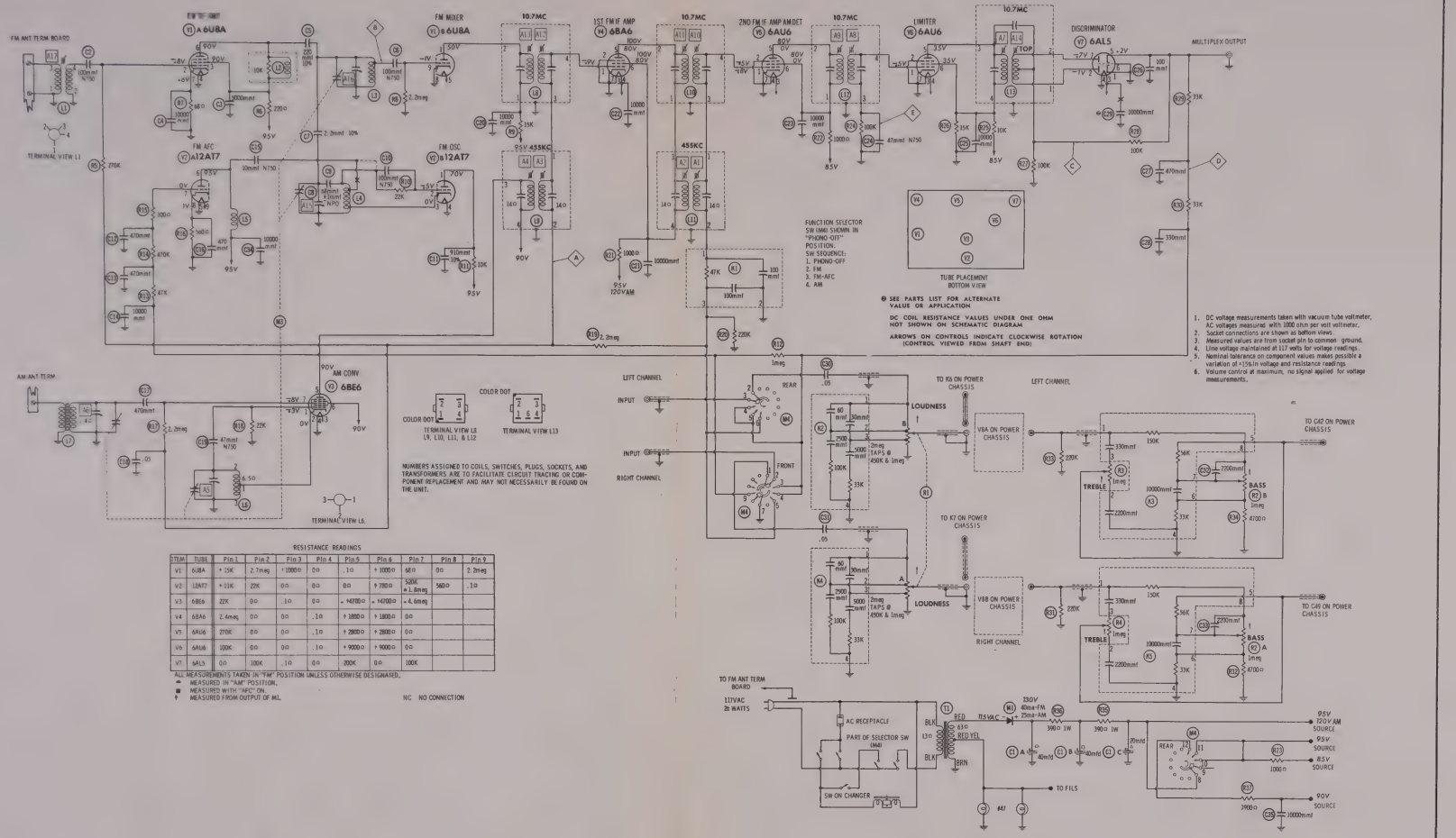





TUNER CHASSIS BOTTOM VIEW-RESISTOR & INDUCTOR IDENT.




AMP CHASSIS-BOTTOM VIEW


FM ANT TERM. BOARD
FM MIXER
6U8A
FM AFC
12AT7
FM OSC
12AT7
1ST FM IF AMP
6BA6
2ND FM IF AMP AM DET
6AU6
LIMITER
6AU6
DISCRIMINATOR
6AL5
MULTIPLEX OUTPUT
10.7MC
455KC
AM CONV
6BE6
AM ANT TERM.
TERMINAL VIEW L1
TERMINAL VIEW L6
TERMINAL VIEW L8
TERMINAL VIEW L13
COLOR DOT
LEFT CHANNEL
RIGHT CHANNEL
INPUT
REAR
FRONT
LOUDNESS
TREBLE
BASS
TO K6 ON POWER CHASSIS
TO K7 ON POWER CHASSIS
TO C42 ON POWER CHASSIS
TO C49 ON POWER CHASSIS
V8A ON POWER CHASSIS
V8B ON POWER CHASSIS
TO FM ANT TERM BOARD
117VAC 2b WATTS
AC RECEPTACLE
PART OF SELECTOR SW (M4)
SW ON CHANGER
TO FILS
120V AM SOURCE
9.5V SOURCE
8.5V SOURCE
90V SOURCE
TUBE PLACEMENT BOTTOM VIEW
FUNCTION SELECTOR SW (M4) SHOWN IN "PHONO-OFF" POSITION. SW SEQUENCE: 1. PHONO-OFF 2. FM 3. FM-AFC 4. AM
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of +15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

| TRM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 6U8A | + 15K | 2.7meg | + 1000Ω | 0Ω | .1Ω | + 1000Ω | 68Ω | 0Ω | 2.2meg |
| V2 | 12AT7 | + 11K | 22K | 0Ω | 0Ω | 0Ω | + 780Ω | 520K = 1.8meg | 560Ω | .1Ω |
| V3 | 6BE6 | 22K | 0Ω | .1Ω | 0Ω | = 14700Ω | = 14700Ω | = 4.6meg | | |
| V4 | 6BA6 | 2.4meg | 0Ω | 0Ω | .1Ω | + 1800Ω | + 1800Ω | 0Ω | | |
| V5 | 6AU6 | 270K | 0Ω | 0Ω | .1Ω | + 2800Ω | + 2800Ω | 0Ω | | |
| V6 | 6AU6 | 100K | 0Ω | 0Ω | .1Ω | + 9000Ω | + 9000Ω | 0Ω | | |
| V7 | 6AL5 | 0Ω | 100K | .1Ω | 0Ω | 200K | 0Ω | 100K | | |

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
→ MEASURED IN "AM" POSITION.
■ MEASURED WITH "AFC" ON.
+ MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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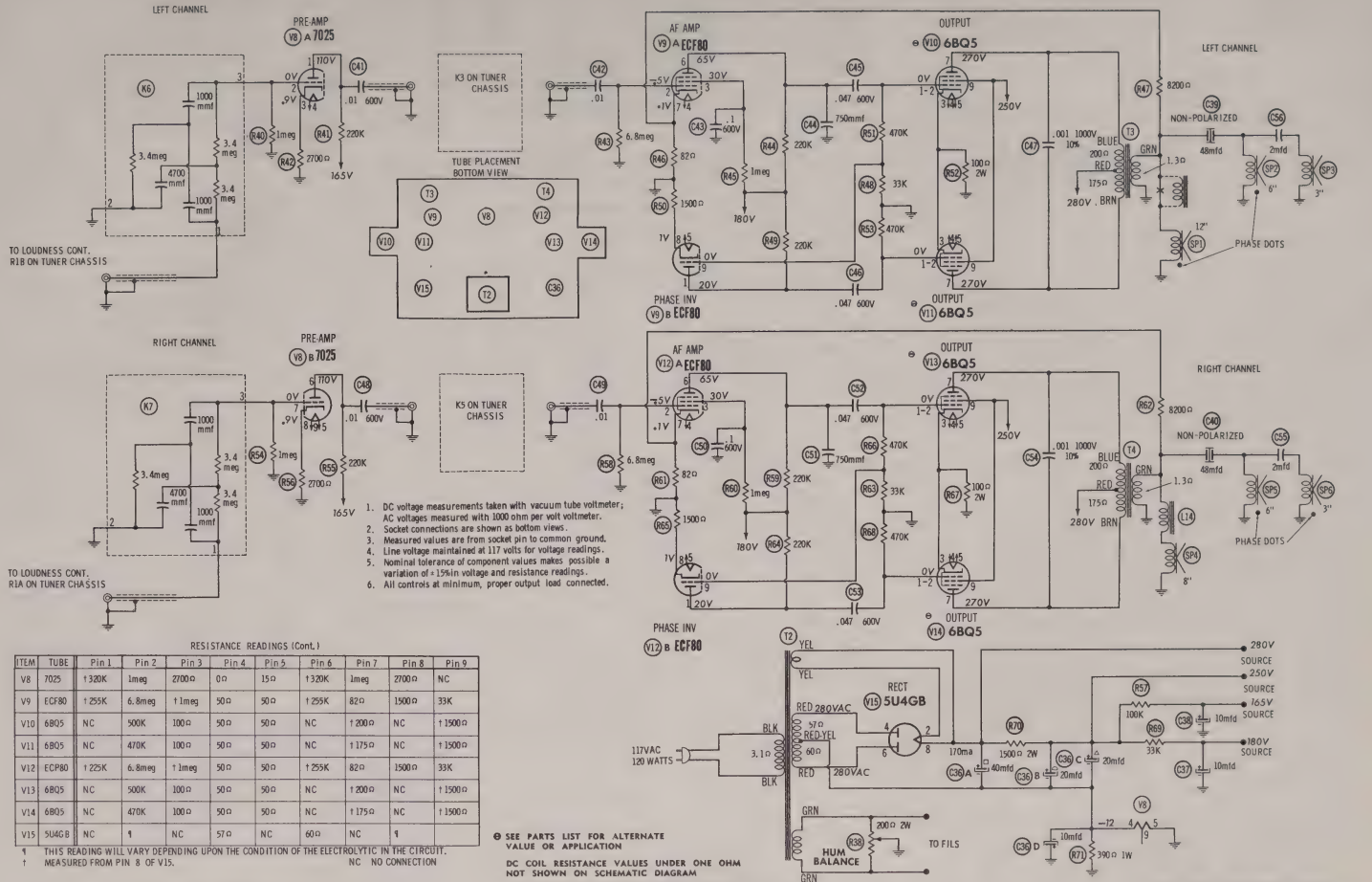
SYLVANIA MODELS 55C15B, F, M (Ch. 650-1, 1-634-1)

TUNER SCHEMATIC




RESISTANCE READINGS (Cont.)

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V8 | 7025 | †320K | 1meg | 2700Ω | 0Ω | 15Ω | †320K | 1meg | 2700Ω | NC |
| V9 | ECF80 | †255K | 6.8meg | †1meg | 50Ω | 50Ω | †255K | 82Ω | 1500Ω | 33K |
| V10 | 6BQ5 | NC | 500K | 100Ω | 50Ω | 50Ω | NC | †200Ω | NC | †1500Ω |
| V11 | 6BQ5 | NC | 470K | 100Ω | 50Ω | 50Ω | NC | †175Ω | NC | †1500Ω |
| V12 | ECF80 | †225K | 6.8meg | †1meg | 50Ω | 50Ω | †255K | 82Ω | 1500Ω | 33K |
| V13 | 6BQ5 | NC | 500K | 100Ω | 50Ω | 50Ω | NC | †200Ω | NC | †1500Ω |
| V14 | 6BQ5 | NC | 470K | 100Ω | 50Ω | 50Ω | NC | †175Ω | NC | †1500Ω |
| V15 | 5U4GB | NC | ¶ | NC | 57Ω | NC | 60Ω | NC | ¶ | |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V15. NC NO CONNECTION

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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**SYLVANIA MODELS 55C15B, F, M (Ch. 650-1, 1-634-1)**

# AMP SCHEMATIC

# TUNER PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
|---|---|---|---|---|---|
| V1 | FM RF Amp. - FM Mixer | 6U8A | V4 | 1st FM-AM IF Amp. | 6BA6 |
| V2 | FM Osc. -FM AFC | 12AT7 | V5 | 2nd FM IF Amp. -AM Det. | 6AU6 |
| V3 | AM Converter | 6BE6 | V6 | FM Limiter | 6AU6 |
| | | | V7 | Discriminator | 6AL5 |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA SYLVANIA PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ▲40 | 200 | 161-3040 | AFHS3-94 | C1240 | FP318.74 | | TVLS-2575.1* | |
| B | ■40 | 200 | | | BR4025 | | | TVA-1508 | |
| C | ▲20 | 200 | | | | | | | |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C2 | 100 N750 | | N750-DI 100 | DTN-100 | C10T1U | CCTN-101 | CN7-310 | 10TCU-T10 |
| C3 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C4 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C5 | 220 10% | | DI-220 | DD-221 | L10T22 | CCD-221 | GP322 | 10TS-T22 |
| C6 | 100 N750 | | N750-DI 100 | DTN-100 | C10T1U | CCTN-101 | CN7-310 | 10TCU-T10 |
| C7 | 2.2 10% | | NPO-SI 2.2 | TCZ-2R2 | C10V22C | CCTO-2R2 | CNO-522 | 10TCC-V22 |
| C8 | | | | | | | | |
| C9 | 68 NPO + 1mmf | | | | | | | |
| C10 | 100 N750 | | N750-DI 100 | DTN-100 | C10T1U | CCTN-101 | CN7-310 | 10TCU-T10 |
| C11 | 910 10% | | DI-1000 | DD-911 | 5R5T91 | CCD-102 | GP210 | 10TS-D10 |
| C12 | 470 | | BPD-00047 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C13 | 470 | | BPD-00047 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C14 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C15 | 10 N750 | | N750-DI 10 | DTN-10 | C10Q1U | CCTN-100 | CN7-410 | 10TCU-T10 |
| C16 | 470 | | BPD-00047 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C17 | 470 | | BPD-00047 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C18 | .05 200V | | P288N-05 | DD-503 | CUB2S5 | 4DP-3-503 | GEM-415 | 2TM-S50 |
| C19 | 47 N750 | | N750-DI 47 | DTN-47 | C10Q47U | CCTN-470 | CN7-447 | 10TCU-Q47 |
| C20 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C21 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C22 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C23 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C24 | 47 N750 | | N750-DI 47 | DTN-47 | C10Q47U | CCTN-470 | CN7-447 | 10TCU-Q47 |
| C25 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |

## FIXED CAPACITORS (cont)

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C26 | 100 | | DI-100 | DD-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C27 | 470 | | BPD-00047 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C28 | 330 | | BPD-00033 | DD-331 | L10T33 | CCD-331 | B-333 | 10TS-T33 |
| C29 | 10000 | Note 1 | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C30 | .05 200V | | P288N-05 | DD-503 | CUB2S5 | 4DP-3-503 | GEM-415 | 2TM-S50 |
| C31 | .05 200V | | P288N-05 | DD-503 | CUB2S5 | 4DP-3-503 | GEM-415 | 2TM-S50 |
| C32 | 2200 | | BPD-0022 | DD-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C33 | 2200 | | BPD-0022 | DD-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C34 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C35 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |

Note 1. Not used in some versions.

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA SYLVANIA PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 2meg * | | | | | | | Loudness, Right Channel |
| B | 2meg * | | | | | | | Loudness, Left Channel |
| R2A | 1meg | | 153-0226 | B-70 | AD47-1meg-Z | | FA16A | Bass, Right Channel |
| B | 1meg | | | SR-70 | Not Req. | | RU16A | Bass, Left Channel |
| C | Shaft | | | Not Req. | FS-3 | | CS3500 | |
| R3A | 1meg | ½ | 153-0227 | B-70 | A47-1meg-Z | Q13-137 | U53 | Treble, Left Channel |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |
| R4A | 1meg | ½ | 153-0227 | B-70 | A47-1meg-Z | Q13-137 | U53 | Treble, Right Channel |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |

* Some versions may use 5meg in this application (Part #153-0228) Taps @ 450K & 1meg.

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R5 | 270K | |
| R6 | 220Ω | |
| R7 | 68Ω | |
| R8 | 2.2meg | |
| R9 | 15K | |
| R10 | 22K | |
| R11 | 10K | |
| R12 | 1meg | |
| R13 | 47K | |
| R14 | 470K | |
| R15 | 100Ω | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R16 | 560Ω | |
| R17 | 2.2meg | |
| R18 | 22K | |
| R19 | 2.2meg | |
| R20 | 220K | |
| R21 | 1000Ω | |
| R22 | 1000Ω | |
| R23 | 1000Ω | |
| R24 | 100K | |
| R25 | 10K | |
| R26 | 15K | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R27 | 100K | |
| R28 | 100K | |
| R29 | 33K | |
| R30 | 33K | |
| R31 | 220K | |
| R32 | 4700Ω | |
| R33 | 220K | |
| R34 | 47000Ω | |
| R35 | 390Ω 1W | |
| R36 | 390Ω 1W | |
| R37 | 3900Ω | |

# TUNER PARTS LIST AND DESCRIPTIONS (Continued)

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | SYLVANIA PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K1 | AM Det. RF Filter | 100mmf, 100mmf, 47K | 190-0044 | Aerovox PA-97<br>Centralab PC-50<br>Cornell Dubilier 111TM1<br>Sprague D-1 |
| K2 | Loudness Comp. | 30mmf, 60mmf, 2500mmf, 5000mmf, 33K, 100K | 190-0045 | |
| K3 | Tone Comp. | 330mmf, 2200mmf, 10000mmf, 33K, 56K, 150K | 190-0053 | |
| K4 | Loudness Comp. | 30mmf, 60mmf, 2500mmf, 5000mmf, 33K, 100K | 190-0045 | |
| K5 | Tone Comp. | 330mmf, 2200mmf, 10000mmf, 33K, 56K, 150K | 190-0053 | |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | | SYLVANIA PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | |
| L1 | FM Ant. Trans. | 111-0050 | | | | | |
| L2 | RF Choke (5.6uh) | 145-0035 ① | SW-631 * | 4609 * | RTC-8519 * | T859* | ① Wound on 10K<br>* Parallel with 10K |
| L3 | FM RF Coil | 112-0018 | | | | | |
| L4 | FM Osc. Coil | 113-0048 | | | | | |
| L5 | RF Choke (3uh) | 145-0033 | SW-630 | 9310-24 | RTC-9155 | T858 | |
| L6 | 1st FM IF Trans. | 121-0034 | FM-254 | 1463 | RTC-8599 | T633 | |
| L7 | Loopstick | 581-0023 | BC-418 | 705-A | | T532 | |
| L8 | AM Osc. Coil | 113-0080 | BC-400 | 70-OSC | RTC-8647 | T502 | |
| L9 | 1st AM IF Trans. | 121-0033 | BC-352 | 12-C1 | RTC-8632 | T607 | |
| L10 | 2nd FM IF Trans. | 121-0034 | FM-254 | 1463 | RTC-8599 | T633 | |
| L11 | 2nd AM IF Trans. | 121-0033 | BC-353 | 12-C2 | RTC-8633 | T608 | |
| L12 | 3rd FM IF Trans. | 121-0034 | FM-254 | 1463 | RTC-8599 | T633 | |
| L13 | Discriminator | 128-0016 | FM-253 | 1464 | RTC-8665 | T634 | |

## TRANSFORMER (POWER)

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SYLVANIA PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 117V Ⓐ .27A | 115V Ⓐ .040A DC Tap Ⓐ 6.3V Ⓐ 2.5A | 141-0080 | | | | | |

## POWER RECTIFIERS

| ITEM No. | RATING | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | CURRENT (Measured) | SYLVANIA PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | |
| M1 | .040A | 517-0022 * | 1N1763 ♦ | 65A * | SR200 * | * Selenium Type<br>♦ Silicon Type |

## PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

| ITEM No. | REPLACEMENT DATA | | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | SYLVANIA PART No. | | ASTATIC PART No. | | ELECTRO-VOICE PART No. | | SONOTONE PART No. | | |
| | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | |
| M2 | | | 13TX | Not Req. | 26SD | Not Req. | 10T2-SD | Not Req. | |

## MISCELLANEOUS

| ITEM No. | PART NAME | SYLVANIA PART No. | NOTES |
|---|---|---|---|
| M3 | Tuning Cap. | 170-0032 | 2 Gang, Ant. 15—258mmf, Osc. 17—127mmf |
| M4 | Switch | 573-0024 | Selector (Rotary Wafer Type), Includes Four Rotary Snap Switches Part #571-0033 |
| M5 | Switch | | Off-On-Reject (Part of Changer) |
| M6 | Motor | | Drive, (Part of Changer) |

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

# AMP PARTS LIST AND DESCRIPTIONS

## TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

| ITEM No. | USE | TYPE |
|---|---|---|
| V8 | Left Channel Preamp. - Right Channel Preamp. | 7025 |
| V9 | Left Channel AF Amp. - Phase Inv. | ECF80 |
| V10 | Left Channel Output | 6BQ5 (EL84) * |
| V11 | Left Channel Output | 6BQ5 (EL84) * |
| V12 | Right Channel AF Amp. - Phase Inverter | ECF80 |
| V13 | Right Channel Output | 6BQ5 (EL84) * |
| V14 | Right Channel Output | 6BQ5 (EL84) * |
| V15 | Rectifier | 5U4GB |

* Alternate

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA SYLVANIA PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C36A | ■40 | 450 | 161-4027 | AFH4-82-50 | D0662 | FP476 | TMQ-4646 | TVL-4771.6 | |
| B | ▬20 | 450 | | | | | | | |
| C | ▲20 | 450 | | | | | | | |
| D | 10 | 50 | | | | | | | |
| C37 | 10 | 450 | 161-1052 | PRS1720 | BR1045 | TC72 | TD-10-450 | TVA-1705 | |
| C38 | 10 | 450 | 161-1052 | PRS1720 | BR1045 | TC72 | TD-10-450 | TVA-1705 | |
| C39 | 48 | 50NP | 161-1047 | PRS7450 | BR5015 | TC3501 † | | TVANS-1308.1* | |
| C40 | 48 | 50NP | 161-1047 | PRS7450 | BR5015 | TC3501 † | | TVANS-1308.1* | |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Use 2 units. Connect negative terminals together. Connect positive terminals into circuit the same as the original non-polarized unit.

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C41 | .01 600V | | P688N-01 | D6-103 | CUB6S1 | 6DP-2-103 | GEM-611 | 6TM-S10 |
| C42 | .01 400V | | P488N-01 | D6-103 | CUB4S1 | 4DP-1-103 | GEM-611 | 6TM-S10 |
| C43 | .1 600V | | P688N-1 | DF-104 | CUB6P1 | 6DP-4-104 | GEM-601 | 6TM-P10 |
| C44 | 750 | | DI-750 | DD-751 | L10T25 | CCD-751 | GP375 | 10TS-T75 |
| C45 | .047 600V | | P688N-047 | DD-503 | CUB6S47 | 6DP-3-473 | GEM-6147 | 6TM-S47 |
| C46 | .047 600V | | P688N-047 | DD-503 | CUB6S47 | 6DP-3-473 | GEM-6147 | 6TM-S47 |
| C47 | .001 1000V 10% | | | DD-102 | DPMS10D1 | 16DP-2-102 | GEM-1621 | 10TM-D10 |
| C48 | .01 600V | | P688N-01 | D6-103 | CUB6S1 | 6DP-2-103 | GEM-611 | 6TM-S10 |
| C49 | .01 400V | | P488N-01 | D6-103 | CUB4S1 | 4DP-1-103 | GEM-611 | 6TM-S10 |
| C50 | .1 600V | | P688N-1 | DF-104 | CUB6P1 | 6DP-4-104 | GEM-601 | 6TM-P10 |
| C51 | 750 | | DI-750 | DD-751 | L10T75 | CCD-751 | GP375 | 10TS-T75 |
| C52 | .047 600V | | P688N-047 | DD-503 | CUB6S47 | 6DP-3-473 | GEM-6147 | 6TM-S47 |
| C53 | .047 600V | | P688N-047 | DD-503 | CUB6S47 | 6DP-3-473 | GEM-6147 | 6TM-S47 |
| C54 | .001 1000V 10% | | | DD-102 | DPMS10D1 | 16DP-2-102 | GEM-1621 | 10TM-D10 |
| C55 | 2mfd 400V | | P482Z-2.0 | | WMF1W2E | | | |
| C56 | 2mfd 400V | | P482Z-2.0 | | WMF1W2E | | | |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA SYLVANIA PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R38 | 200Ω | 2(WW) | 159-0010 | | | | FL200P | Hum Balance* |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R39 | 1meg | |
| R40 | 1meg | |
| R41 | 220K | |
| R42 | 2700Ω | |
| R43 | 6.8meg | |
| R44 | 220K | |
| R45 | 1meg | |
| R46 | 82Ω | |
| R47 | 8200Ω | |
| R48 | 33K | |
| R49 | 220K | |
| R50 | 1500Ω | |
| R51 | 470K | |
| R52 | 100Ω 2W | |
| R53 | 470K | |
| R54 | 1meg | |
| R55 | 220K | |
| R56 | 2700Ω | |
| R57 | 100K | |
| R58 | 6.8meg | |
| R59 | 220K | |
| R60 | 1meg | |
| R61 | 82Ω | |
| R62 | 8200Ω | |
| R63 | 33K | |
| R64 | 220K | |
| R65 | 1500Ω | |
| R66 | 470K | |
| R67 | 100Ω 2W | |
| R68 | 470K | |
| R69 | 33K | |
| R70 | 1500Ω 2W | |
| R71 | 390Ω 1W | |

## RESISTORS (cont)

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | SYLVANIA PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K6 | Rumble Filter Comp. | 1000mmf, 1000mmf, 4700mmf, 3.4meg, 3.4meg, 3.4meg | 190-0046 | |
| K7 | Rumble Filter Comp. | 1000mmf, 1000mmf, 4700mmf, 3.4meg, 3.4meg, 3.4meg | 190-0046 | |

## CROSSOVER CHOKE

| ITEM No. | RATINGS CURRENT (Measured) | RATINGS DC RES. | RATINGS INDUCTANCE (0 CURRENT 1000 ~) | REPLACEMENT DATA SYLVANIA PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| L14 | | .35Ω | .0044 HY | 145-0031 | | | | | |

## TRANSFORMER (POWER)

| ITEM No. | RATING PRI. | RATING SEC. 1 | RATING SEC. 2 | REPLACEMENT DATA SYLVANIA PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T2 | 117V@ 1A | 560VCT @.170A DC | 5V@ 3A | 141-0078 | P-3084 | P-8172 | 26R44 | | |
| | SEC. 3 | SEC. 4 | SEC. 5 | | | | | | |
| | 6.3V@ 4A | | | | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE PRI. | IMPEDANCE SEC. | REPLACEMENT DATA SYLVANIA PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T3 | 5800Ω CT | 6-8Ω | 143-0076 | A-2901① | A-3823① | 22S88 | S-56Z | ① Drill New Mounting Hole (s) |
| T4 | 5800Ω CT | 6-8Ω | 143-0076 | A-2901① | A-3823① | 22S88 | S-56Z | |

## SPEAKER

| ITEM No. | TYPE SIZE | TYPE FIELD | TYPE V. C. IMP. | REPLACEMENT DATA SYLVANIA PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 12" | PM | 6-8Ω | 539-1211 | 12A6AZ7 | |
| SP2 | 6" | PM | 3-4Ω | 539-0611 | 6A21 | |
| SP3 | 3" | PM | 6-8Ω | 539-0301 | 3A15TZ6.8 | |
| SP4 | 8" | PM | 3-4Ω | 539-0813 | 8A31 | |
| SP5 | 6" | PM | 3-4Ω | 539-0611 | 6A21 | |
| SP6 | 3" | PM | 6-8Ω | 539-0301 | 3A15TZ6.8 | |

## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Glass | 721-0027 | Dial |
| Pointer | 792-0026 | Dial |
| Knob | 740-0308 | Tuning, Bass, Treble, Function |
| Knob | 740-0305 | Loudness (Inner) |
| Knob | 740-0309 | Loudness (Outer) |

PHOTOFACT® Folder

**SYMPHONIC
MODELS 125, 1650, 1668**

SYMPHONIC
MODELS 125, 1650, 1668

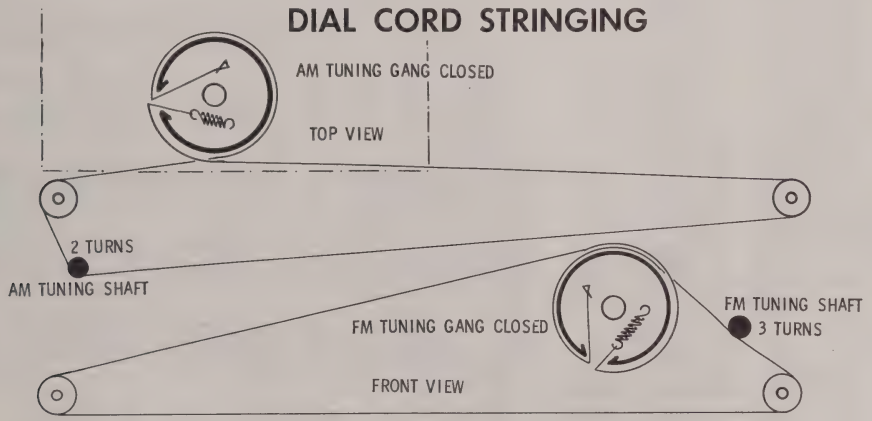
MODEL 1668

SYMPHONIC
MODELS 125, 1650, 1668

| | | | |
|---|---|---|---|
| TRADE NAME | Symphonic Models 125, 1650, 1668 | | |
| MANUFACTURER | Symphonic Radio & Electronic Corp., 235 Jersey Ave., New Brunswick, N. J. | | |
| TYPE SET | AC Operated 9 Tube FM-AM Tuner, 7 Tube Stereo Amplifier and 4 Speed Automatic Record Changer (Model 1650 Does not include tuner) | | |
| POWER SUPPLY | 110 – 120 Volts AC, 60 Cycles | RATING | 35 Watts, .3 Amp. @117 Volts AC (Tuner)<br>155 Watts, 1.5 Amp. @117 Volts AC (Amp.) |
| TUNING RANGE—BROADCAST | 540 – 1600KC | FREQ. MOD. | 88 – 108MC |

FOR SERVICE INFORMATION ON RECORD CHANGER – SEE GLASER-STEERS GS-77 (REVISED) – PHOTOFACT SET 482 FOLDER 11

## DIAL CORD STRINGING




**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

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KN191



SET 536 FOLDER 13

# TUNER PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •) |
|---|---|---|
| V1 | FM RF Amp. -FM Mixer | ECC85 (6AQ8) * |
| V2 | FM Osc. -AFC | 12AT7 |
| V3 | 1st FM IF Amp. | 6AU6 |
| V4 | 2nd FM IF Amp. | 6BA6 |
| V5 | FM Limiter | 6AU6 |
| V6 | AM Converter | 6BE6 |
| V7 | AM IF Amp. | 6BA6 |
| V8 | Channel A AF Amp. - Channel B AF Amp. | 12AX7 |
| V9 | Rectifier | EZ80 (6V4) * |

* Alternate

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | SYMPHONIC PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ▲40 | 450 | CE-134 | AFH3-44 | C0350 | FP238 TC78 | TMT-3748 | TVL-3787 | |
| B | ■40 | 450 | | | | | | | |
| C | ▲40 | 450 | | | | | | | |
| C2 | 40 | 250 | CE-139 | AFH1-29 | XA0291 | FP146 | TMS-1450 | TVL-1519 | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C3 | 1000 | #CT-101 | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C4 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C5 | 47 N750 | | N750-DI 47 | DTN-47 | C10Q47U C10V6C | CCTN-470 | CN7-447 | 10TCU-Q47 10TCC-V56 |
| C6 | 6 10% | | | | | | | |
| C7 | 2.2 NPO ± .5mmf | | NPO-DI 2.2 | DTZ-2R2 | C10V22C | CCTO-2R2 | CNO-522 | 10TCC-V22 |
| C8 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C9 | 2.2 NPO ± .5mmf | | NPO-DI 2.2 | DTZ-2R2 | C10V22C | CCTO-2R2 | CNO-522 | 10TCC-V22 |
| C10 | 1-8 | | | 829-10 | | | | |
| C11 | 100 N750 | | N750-SI 100 | TCN-100 | C10T1U | CCTN-101 | CN7-310 | 10TCU-T10 |
| C12 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 * | B-210 | 5HK-D10 |
| C13 | 10 N5600 | | | | | | | |
| C14 | 470 | | BPD-00047 | DD-470 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C15 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 * | B-110 | 5HK-S10 |
| C16 | 47 N5600 | | | | | | | |
| C17 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C18 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C19 | 2000 | | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C20 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C21 | 5000 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C22 | 47 N750 | | N750-DI 47 | DTN-47 | C10Q47U | CCTN-470 | CN7-447 | 10TCU-Q47 |
| C23 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C24 | 100 N750 | | N750-SI 100 | TCN-100 | C10T1U | CCTN-101 | CN7-310 | 10TCU-T10 |
| C25 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C26 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C27 | 1000 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C28 | .05 200V | | P268N-05 | DD-503 | CUB2S5 | 4DP-3-503 | GEM-415 | 2TM-S50 |
| C29 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C30 | 100 | | BPD-0001 | DD-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C31 | 100 | | BPD-0001 | DD-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C32 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C33 | 100000 | | | DDA-104 | CUB2P1 | DP-2-104 | BT-010 | TH-P10 |
| C34 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C35 | 100000 | | | DDA-104 | CUB2P1 | DP-2-104 | BT-010 | TH-P10 |
| C36 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |

# Symphonic Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | SYMPHONIC PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 3meg | 1/2 | VC-301 | B-85 * | | | | Loudness, Channel A |
| B | 3meg | 1/2 | | SR-85 * | | | | Loudness, Channel B |
| C2A | 1meg | 1/2 | VC-306 | B-69 | AD47-1meg-S | | FA16L | Bass, Channel A |
| B | 1meg | 1/2 | | SR-69 | Not Req. | | RU16L | Bass, Channel B |
| C | Shaft | | | Not Req. | KSS-3 | | CS3500 | |
| R3A | 1meg | 1/2 | VC-307 | B-69 | AD47-1meg-S | | FA16L | Treble, Channel A |
| B | 1meg | 1/2 | | SR-69 | Not Req. | | RU16L | Treble, Channel B |
| C | Shaft | | | Not Req. | KSS-3 | | CS3500 | |
| D | Switch | | | KR-1 | SWE-12 | | US41 | Power Off-On |

* Use AK-32 Stereo Friction Spring.

## RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R4 | 100Ω | |
| R5 | 2.2meg | |
| R6 | 47K | |
| R7 | 22K | |
| R8 | 1200Ω 1W | |
| R9 | 2.2meg | |
| R10 | 470K | |
| R11 | 100Ω | |
| R12 | 10K | |
| R13 | 1000Ω | |
| R14 | 1meg | |
| R15 | 1000Ω | |
| R16 | 1000Ω | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R17 | 68Ω | |
| R18 | 100K | |
| R19 | 15K | |
| R20 | 15K | |
| R21 | 100K | |
| R22 | 100K | |
| R23 | 100K | |
| R24 | 68K | |
| R25 | 220K | |
| R26 | 22K | |
| R27 | 2.2meg | |
| R28 | 150Ω | |
| R29 | 47K | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R30 | 470K | |
| R31 | 390K | |
| R32 | 270K | |
| R33 | 3300Ω | |
| R34 | 100K | |
| R35 | 390K | |
| R36 | 270K | |
| R37 | 3300Ω | |
| R38 | 100K | |
| R39 | 390Ω 3W | IRC#PW5-390Ω |
| R40 | 390Ω 3W | IRC#PW5-390Ω |
| R41 | 4700Ω | |

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | SYMPHONIC PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K1 | Tone Comp. | 100mmf, 2000mmf, 2000mmf, 20000mmf, 10K, 150K | PC-S225 | |
| K2 | Tone Comp. | 100mmf, 2000mmf, 2000mmf, 20000mmf, 10K, 150K | PC-S225 | |

## COILS (RF-IF)

| ITEM No. | USE | SYMPHONIC PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| L1 | FM Ant. Coil | LB-103 ① | | 4584 | RTC-8512 | T957 | .27uh |
| L2 | RF Choke | LB-101 ① | BC-564 | 4608 | RTC-8518 | T858 | 3.3uh |
| L3 | FM RF Coil | LO-108 | | | | | |
| L4 | FM Mixer Coil | LO-108 | | | | | |
| L5 | FM Osc. Coil | LO-109 | | | | | |
| L6 | Cathode Choke | LB-102 ① | BC-561 | 4602 | RTC-8515 | T855 | |
| L7 | 1st FM IF Trans. | LF-107 | FM-254 | 1463 | RTC-8599 | T633 | |
| L8 | 2nd FM IF Trans. | LF-105 | FM-254 | 1463 | RTC-8599 | T633 | |
| L9 | 3rd FM IF Trans. | LF-108 | FM-254 | 1463 | RTC-8599 | T633 | |

# TUNER PARTS LIST AND DESCRIPTIONS (Continued)

## COILS (RF-IF) (cont)

| ITEM No. | USE | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | | SYMPHONIC PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | |
| L10 | Discriminator | LF-106 | FM-253 | 1464 | RTC-8665 | T634 | |
| L11 | Loopstick | AL-103 | BC-419 | 705-A | | T532 | |
| L12 | AM Osc. Coil | LO-107 | BC-393 | 69-OSC | RTC-8640 | T503 | |
| L13 | 1st AM IF Trans. | LF-104 | BC-352 | 12-C1 | RTC-8632 | T607 | |
| L14 | 2nd AM IF Trans. | LF-104 | BC-353 | 12-C2 | RTC-8633 | T608 | |

① IRC Part #CLA

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SYMPHONIC PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 117V@ .3A | 300VCT @.060A | 6.3V@ 3.3A | TR-188 | | | | | |

## SIGNAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | SYMPHONIC PART No. | GENERAL ELECTRIC PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| M1 | 1N542 | CR-1N542 | | 1N542 | 1N542 | FM Det. (Pigtail) Matched |
| M2 | 1N542 | CR-1N542 | | 1N542 | 1N542 | FM Det. (Pigtail) Pair |
| M3 | 1N87G | CR-1N87 | | 1N87 | 1N87 | AM Det. (Pigtail) |

## MISCELLANEOUS

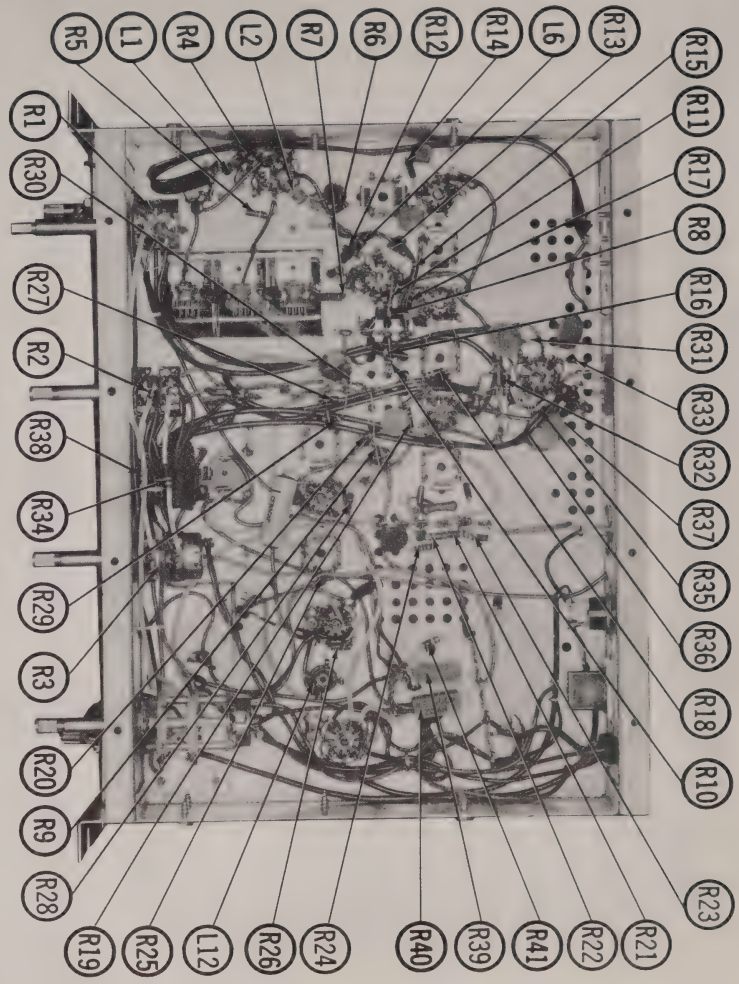
| ITEM No. | PART NAME | SYMPHONIC PART No. | NOTES |
|---|---|---|---|
| M4 | Tuning Cap | CV-107 | FM, 3 Gang |
| M5 | Tuning Cap | CV-108 | AM, 2 Gang(Ant. 21-484mmf, Osc. 8-160mmf) |
| M6 | Switch | SW-131 | Function (Rotary Wafer Type) |
| M7 | Switch | SW-133 | AFC (Mounting on FM Tuning Shaft) |

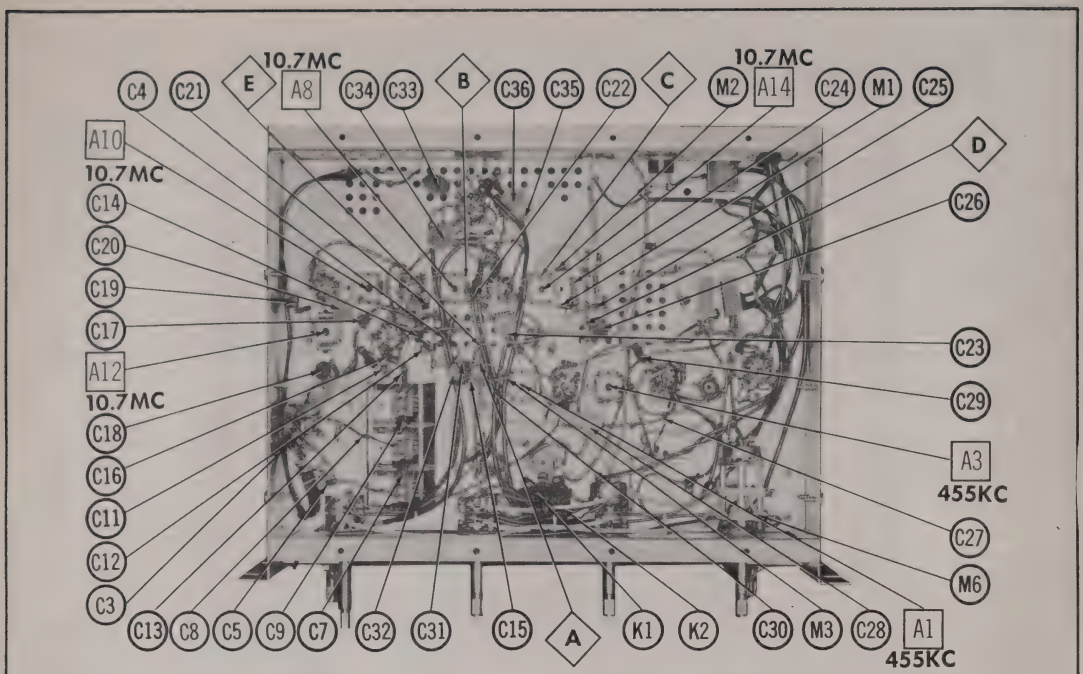
## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

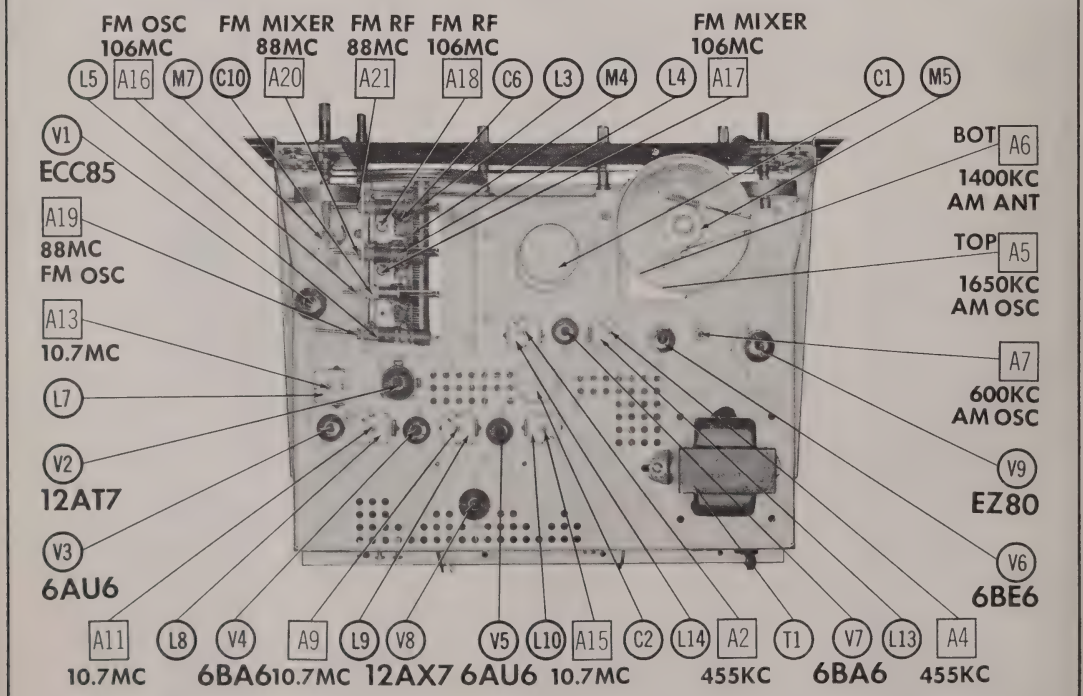
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

## TUNER CHASSIS—BOTTOM VIEW

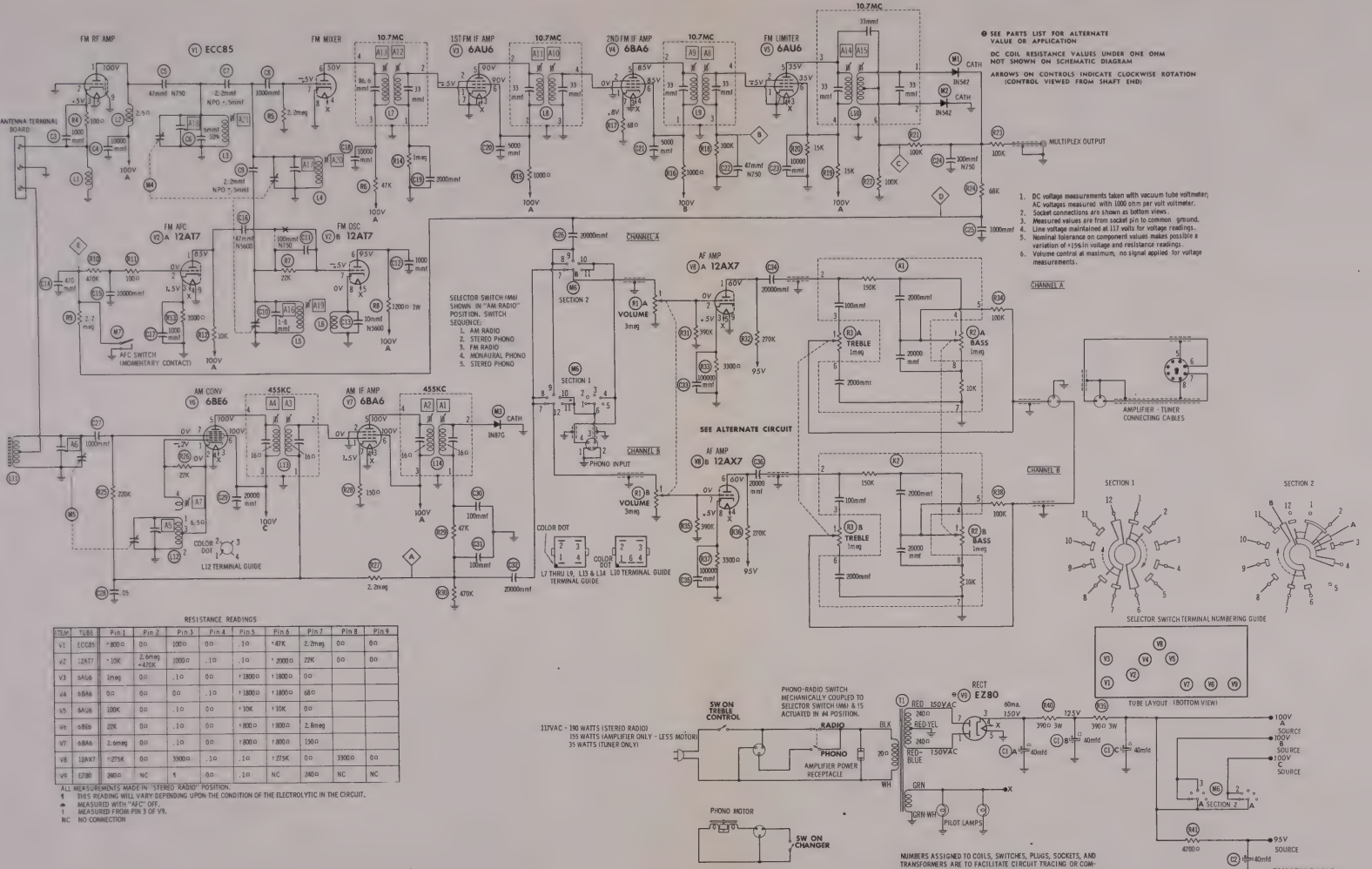





TUNER CHASSIS BOTTOM VIEW-ALIGNMENT, CAPACITOR & MISC. IDENT.




TUNER CHASSIS TOP VIEW


FM RF AMP
Y1 ECC85
FM MIXER
10.7MC
1ST FM IF AMP
Y3 6AU6
2ND FM IF AMP
Y4 6BA6
FM LIMITER
Y5 6AU6
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
ANTENNA TERMINAL BOARD
MULTIPLEX OUTPUT
FM AFC
Y3 A 12AT7
FM OSC
V2 B 12AT7
AFC SWITCH (MOMENTARY CONTACT)
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.
SELECTOR SWITCH (M6) SHOWN IN "AM-RADIO" POSITION. SWITCH SEQUENCE:
1. AM RADIO
2. STEREO PHONO
3. FM RADIO
4. MONAURAL PHONO
5. STEREO PHONO
CHANNEL A
AF AMP
V8 A 12AX7
VOLUME
TREBLE
BASS
AMPLIFIER - TUNER CONNECTING CABLES
AM CONV
V6 6BE6
455KC
AM IF AMP
V7 6BA6
SEE ALTERNATE CIRCUIT
CHANNEL B
AF AMP
V8 B 12AX7
PHONO INPUT
COLOR DOT
L12 TERMINAL GUIDE
L7 THRU L9, L13 & L14 TERMINAL GUIDE
L10 TERMINAL GUIDE
SECTION 1
SECTION 2
SELECTOR SWITCH TERMINAL NUMBERING GUIDE
TUBE LAYOUT (BOTTOM VIEW)
117VAC - 190 WATTS (STEREO RADIO)
155 WATTS (AMPLIFIER ONLY - LESS MOTOR)
35 WATTS (TUNER ONLY)
SW ON TREBLE CONTROL
PHONO-RADIO SWITCH MECHANICALLY COUPLED TO SELECTOR SWITCH (M6) & I5 ACTUATED IN #4 POSITION.
RADIO
PHONO
AMPLIFIER POWER RECEPTACLE
PHONO MOTOR
SW ON CHANGER
RECT
V9 EZ80
RED 150VAC
RED-YEL
RED-BLUE 150VAC
GRN
GRN-WH
PILOT LAMPS
100V A SOURCE
100V B SOURCE
100V C SOURCE
9.5V SOURCE
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | ECC85 | *800Ω | 0Ω | 100Ω | 0Ω | .1Ω | *47K | 2.2meg | 0Ω | 0Ω |
| V2 | 12AT7 | *10K | 2.6meg +470K | 1000Ω | .1Ω | .1Ω | *2000Ω | 22K | 0Ω | 0Ω |
| V3 | 6AU6 | 1meg | 0Ω | .1Ω | 0Ω | *1800Ω | *1800Ω | 0Ω | | |
| V4 | 6BA6 | 0Ω | 0Ω | 0Ω | .1Ω | *1800Ω | *1800Ω | 68Ω | | |
| V5 | 6AU6 | 100K | 0Ω | .1Ω | 0Ω | *10K | *10K | 0Ω | | |
| V6 | 6BE6 | 22K | 0Ω | .1Ω | 0Ω | *800Ω | *800Ω | 2.8meg | | |
| V7 | 6BA6 | 2.6meg | 0Ω | .1Ω | 0Ω | *800Ω | *800Ω | 150Ω | | |
| V8 | 12AX7 | *275K | 0Ω | 3300Ω | .1Ω | .1Ω | *275K | 0Ω | 3300Ω | 0Ω |
| V9 | EZ80 | 240Ω | NC | ¶ | 0Ω | .1Ω | NC | 240Ω | NC | NC |

ALL MEASUREMENTS MADE IN "STEREO RADIO" POSITION.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
* MEASURED WITH "AFC" OFF.
† MEASURED FROM PIN 3 OF V8.
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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# TUNER SCHEMATIC

**SYMPHONIC**
**MODELS 125, 1650, 1668**

# ALIGNMENT INSTRUCTIONS

**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools:

| | |
|---|---|
| A1 Thru A4, A8 Thru A15 | GENERAL CEMENT #5097, 8727<br>WALSCO #2515 |
| A5, A6, A17, A18 | GENERAL CEMENT #5004, 5008, 5009<br>WALSCO #2520 |
| A7 | GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440<br>WALSCO #2526, 2543, 2544, 2545 |
| A16, A19, A20, A21 | GENERAL CEMENT #8721, 8722<br>WALSCO #2519 |

AM ALIGNMENT — SELECTOR IN AM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | High side thru 3.5mmf to AM antenna terminal. Low side to chassis. | 455KC (400∿ Mod.) | (AM) Tuning gang fully open. | DC probe to point (A). Common to chassis. | A1, A2, A3, A4 | Adjust for maximum deflection. |
| 2. | " | 1650KC | 1650KC | " | A5 | " |
| 3. | " | 1400KC | 1400KC | " | A6 | " |
| 4. | " | 600KC | 600KC | " | A7 | Adjust for maximum output while rocking tuning gang. Repeat Steps 1 thru 4. |

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

Remove FM Oscillator — AFC tube from its socket.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 5. | High side to ungrounded tube shield floating over FM Mixer. Low side to chassis. | 10.7MC (Unmod.) | (FM) Point of non-interference. | DC probe thru 150K to point (B). Common to chassis. | A8, A9, A10, A11, A12, A13 | Adjust for maximum deflection. |
| 6. | " | " | " | DC probe thru 1meg to point (C). Common to chassis. | A14 | " |
| 7. | " | " | " | DC probe to point (D). Common to chassis. | A15 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Replace FM Oscillator-AFC tube in its socket. |

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.
Remove FM Oscillator-AFC tube from the socket.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 5. | High side to ungrounded tube shield floating over FM Mixer. Low side to chassis. | 10.7MC (450KC Swp) | (FM) Point of non-interference. | Vert. amp. thru 150K to point (B). Low side to chassis. | A8, A9, A10, A11, A12, A13 | Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown |
| 6. | " | " | " | Vert. amp. thru 47K to point (C). Low side to chassis. | A14 | " |
| 7. | " | " | " | Vert. amp. to point (D). Low side to chassis. | A15 | Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A14 for maximum amplitude and straightness of crossover lines. Replace FM Oscillator-AFC tube in its socket. |

FM RF ALIGNMENT—SELECTOR IN FM POSITION

Short point (E) to chassis.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 8. | High side thru 270Ω to FM antenna terminal. Low side to chassis. | 106MC (Unmod.) | (FM) 106MC | DC probe thru 250K to point (B). Common to chassis. | A16, A17, A18 | Adjust for maximum deflection. |
| 9. | " | 88MC | 88MC | " | A19, A20, A21 | " |

FIG. 1

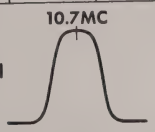
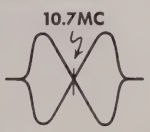
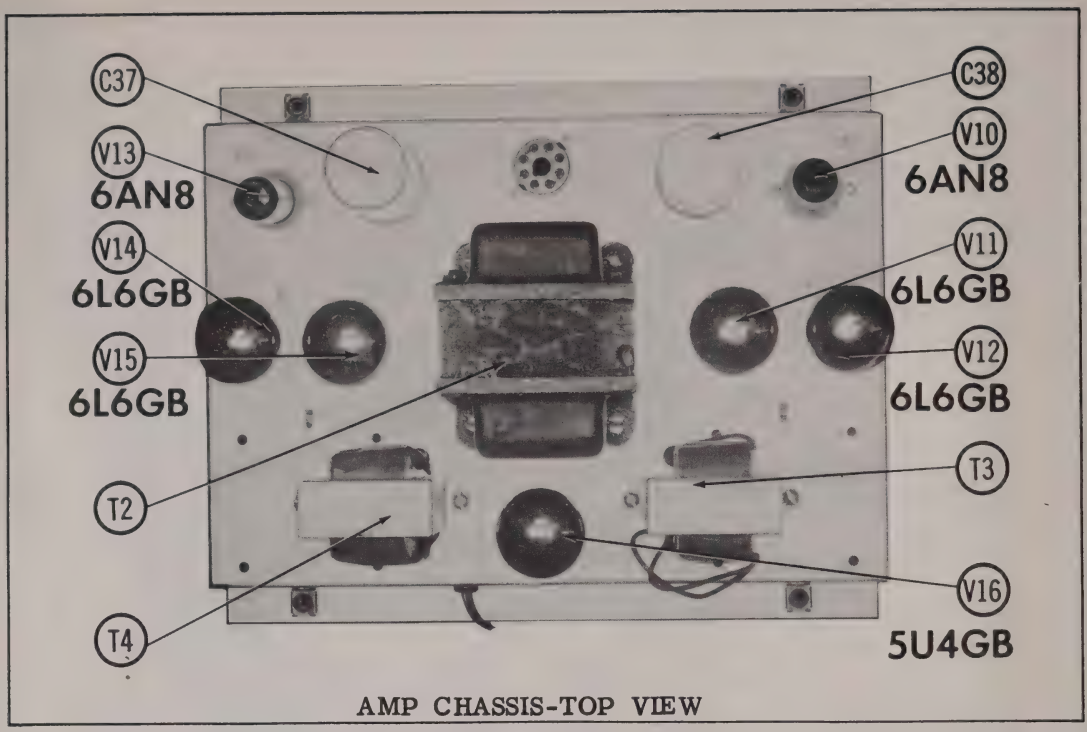
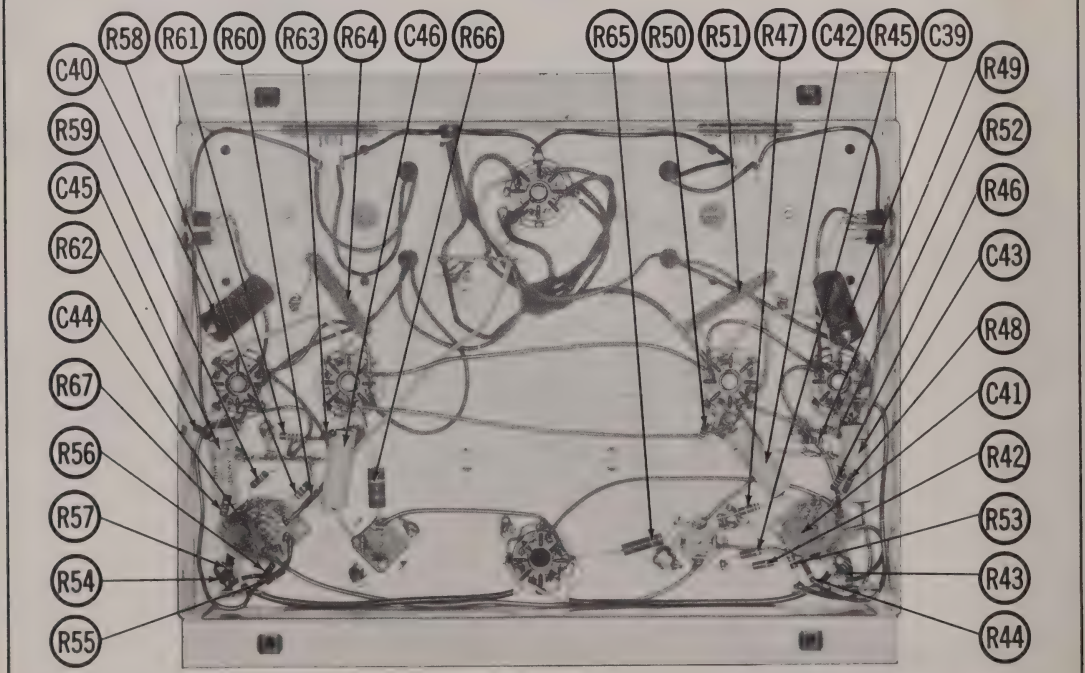



FIG. 2






AMP CHASSIS-TOP VIEW




AMP CHASSIS-BOTTOM VIEW

# AMP PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE (GENERAL ELECTRIC / RAYTHEON / SYLVANIA) |
|---|---|---|
| V10 | Channel A AF Amp. - Phase Inverter | 6AN8 |
| V11 | Channel A Output | 6L6GB |
| V12 | Channel A Output | 6L6GB |
| V13 | Channel B AF Amp. - Phase Inverter | 6AN8 |
| V14 | Channel B Output | 6L6GB |
| V15 | Channel B Output | 6L6GB |
| V16 | Rectifier | 5U4GB |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA SYMPHONIC PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C37A | ▲40 | 450 | CE-134 | AFH3-44 | C0350 | FP238 TC78 | TMT-3748 | TVL-3787 | Note 1 Note 1 |
| B | ■40 | 450 | | | | | | | |
| C | ▲40 | 450 | | | | | | | |
| C38A | ▲40 | 450 | CE-126 | AFH3-41 | C0320 | FP396.2 | TMT-3736 | TVL-3783 | |
| B | ■5 | 450 | | | | | | | |
| C | ▲5 | 450 | | | | | | | |
| C39 | 50 | 50 | CE-137 | PRS1350 | BR505 | TC39 | TD-50-50 | TVA-1308 | |
| C40 | 50 | 50 | CE-137 | PRS1350 | BR505 | TC39 | TD-50-50 | TVA-1308 | |

Note 1. When C37A is 80mfd, C37B is not used.

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C41 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C42 | .05 400V | | P488N-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |
| C43 | .05 400V | | P488N-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |
| C44 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C45 | .05 400V | | P488N-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |
| C46 | .05 400V | | P488N-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |
| C47 | 1.5mfd 200V | | | | WMF2W1P5E | | | |
| C48 | 1.0mfd 200V | | P282Z-1.0 | | WMF2W1E | | GEM-21 | 2TM-M1 |
| C49 | 1.5mfd 200V | | | | WMF2W1P5E | | | |
| C50 | 1.0mfd 200V | | P282Z-1.0 | | WMF2W1E | | GEM-21 | 2TM-M1 |

## RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R42 | 2.2meg | |
| R43 | 270K | |
| R44 | 1meg | |
| R45 | 1000Ω | |
| R46 | 470K | |
| R47 | 47K | |
| R48 | 1200Ω | |
| R49 | 47K | |
| R50 | 470K | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R51 | 250Ω 5W | IRC#PW5-250Ω |
| R52 | 470K | |
| R53 | 27K | |
| R54 | 2.2meg | |
| R55 | 270K | |
| R56 | 1meg | |
| R57 | 1000Ω | |
| R58 | 470K | |
| R59 | 47K | |

| ITEM No. | RATING | REMARKS |
|---|---|---|
| R60 | 1200Ω | |
| R61 | 47K | |
| R62 | 470K | |
| R63 | 470K | |
| R64 | 250Ω 5W | IRC#PW5-250Ω |
| R65 | 10K 1W | |
| R66 | 5600Ω 2W | |
| R67 | 27K | |

## TRANSFORMER (POWER)

| ITEM No. | RATING PRI. | RATING SEC. 1 | RATING SEC. 2 | REPLACEMENT DATA SYMPHONIC PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T2 | 117V Ⓐ 1.5A | 700VCT Ⓐ .180A | 5V Ⓐ 3A | TRI83 | | | | | |
| | SEC. 3 | SEC. 4 | SEC. 5 | | | | | | |
| | 6.3V Ⓐ 4.5A | | | | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE PRI. | IMPEDANCE SEC. | REPLACEMENT DATA SYMPHONIC PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T3 | 5000Ω CT | 6-8Ω | TRI82 | A-2905① | A-3830 | 22S58 | S-57Z | ① Drill New Mounting Hole. |
| T4 | 5000Ω CT | 6-8Ω | TRI82 | A-2905 ① | A-3830 | 22S58 | S-57Z | |

## SPEAKER

| ITEM No. | TYPE SIZE | FIELD | V. C. IMP. | REPLACEMENT DATA SYMPHONIC PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 8"x 12" | PM | 6-8Ω | SP-821 | | |
| SP2 | 5" | PM | 3-4Ω | SP-613 * | 5A15 | * Used in Model 1668 |
| SP3 | 2½" | PM | 3-4Ω | SP-202 | 25A07 | |
| SP4 | 2½" | PM | 3-4Ω | SP-202 | 25A07 | |
| SP5 | 8"x 12" | PM | 6-8Ω | SP-821 | | |
| SP6 | 5" | PM | 3-4Ω | SP-613 * | 5A15 | |
| SP7 | 2½" | PM | 3-4Ω | SP-202 | 25A07 | |
| SP8 | 2½" | PM | 3-4Ω | SP-202 | 25A07 | |
| | 5" | PM | 14-16Ω | SP-608 † | 5A15T | † 2 Used in Model 1650 and may replace SP2 and SP6 in Model 1668. |

## PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

| ITEM No. | SYMPHONIC PART No. CARTRIDGE | SYMPHONIC PART No. NEEDLE* | ASTATIC PART No. CARTRIDGE | ASTATIC PART No. NEEDLE* | ELECTRO-VOICE PART No. CARTRIDGE | ELECTRO-VOICE PART No. NEEDLE* | SONOTONE PART No. CARTRIDGE | SONOTONE PART No. NEEDLE* | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| M8 | | | | | 26S | S1-1 * & S3-3 * | 8TA4-S | N-8TA-S * | |

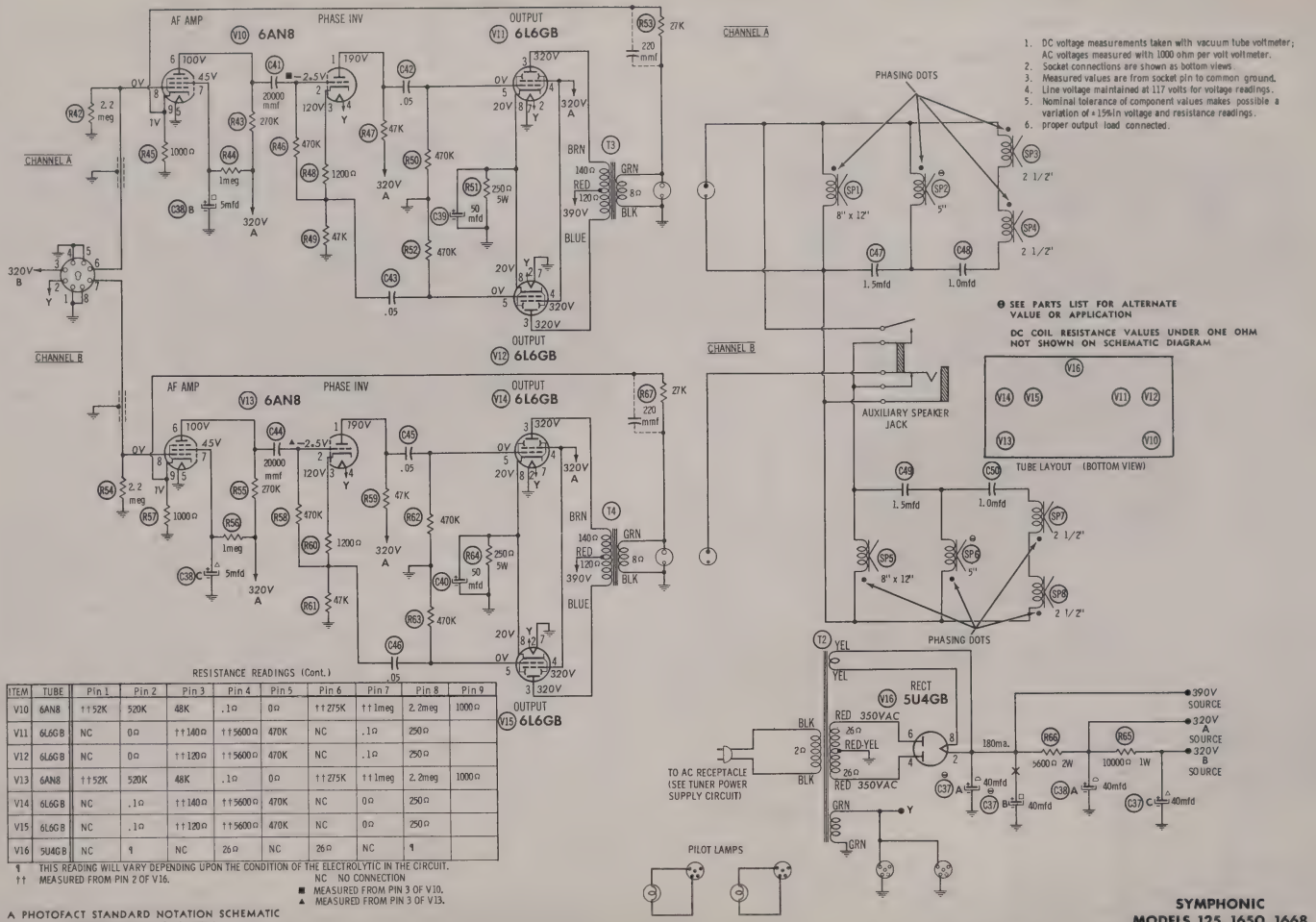
## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Dial Glass | DL107 | |
| Dial Pointer | DL108 | |

## WIRING DATA

| | |
|---|---|
| General-use Unshielded Hook-up Wire | Use BELDEN No. 8530 (Solid) Available in Ten Colors; 8524 (Stranded) Available in Ten Colors |
| Power Cord | Use BELDEN No. 1765-B (6 Ft. Length); 1725-K (7½ Ft. Length) |
| Low-Loss Shielded Lead (Interconnecting) | Use BELDEN No. 8401 |
| Phono Pick-up Arm Cable | Use BELDEN No. 8430 (Two Conductor - Twisted) |




1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. proper output load connected.

❻ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

RESISTANCE READINGS (Cont.)

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V10 | 6AN8 | ††52K | 520K | 48K | .1Ω | 0Ω | ††275K | ††1meg | 2.2meg | 1000Ω |
| V11 | 6L6GB | NC | 0Ω | ††140Ω | ††5600Ω | 470K | NC | .1Ω | 250Ω | |
| V12 | 6L6GB | NC | 0Ω | ††120Ω | ††5600Ω | 470K | NC | .1Ω | 250Ω | |
| V13 | 6AN8 | ††52K | 520K | 48K | .1Ω | 0Ω | ††275K | ††1meg | 2.2meg | 1000Ω |
| V14 | 6L6GB | NC | .1Ω | ††140Ω | ††5600Ω | 470K | NC | 0Ω | 250Ω | |
| V15 | 6L6GB | NC | .1Ω | ††120Ω | ††5600Ω | 470K | NC | 0Ω | 250Ω | |
| V16 | 5U4GB | NC | ¶ | NC | 26Ω | NC | 26Ω | NC | ¶ | |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
†† MEASURED FROM PIN 2 OF V16.
NC NO CONNECTION
■ MEASURED FROM PIN 3 OF V10.
▲ MEASURED FROM PIN 3 OF V13.

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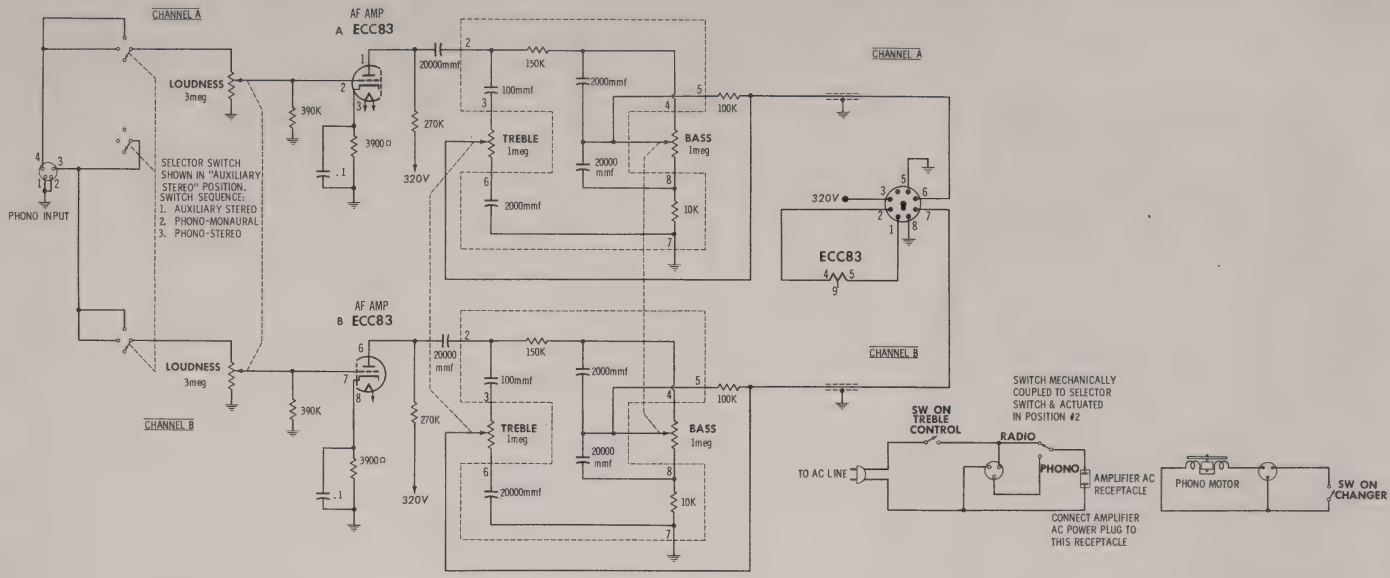
**SYMPHONIC MODELS 125, 1650, 1668**

# AMP SCHEMATIC




AMPLIFIER CIRCUIT USED IN MODEL 1650 – THIS IS A SMALL, SEPARATE CHASSIS)

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SYMPHONIC
MODEL 1650

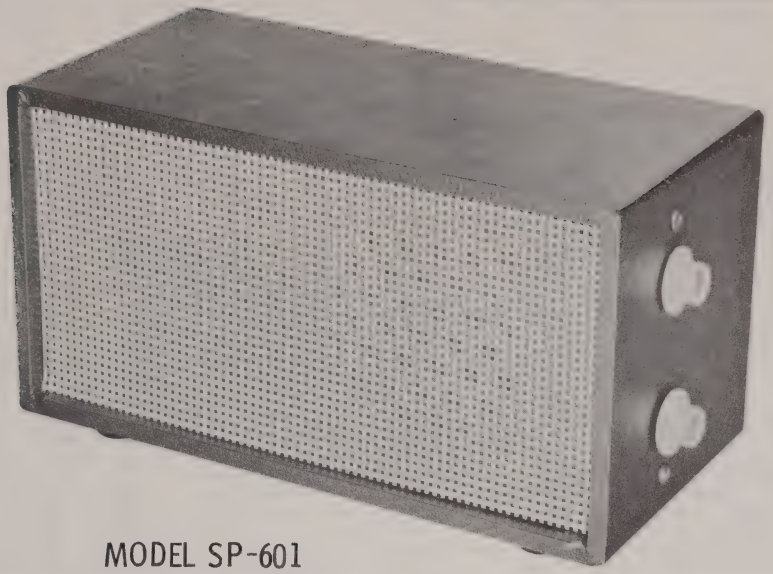
MODEL 1650 PREAMP SCHEMATIC

SYMPHONIC
MODELS 1526, 1532, 1626

PHOTOFACT® Folder

**TELECTRO MODELS
AS-1975, SP-601**

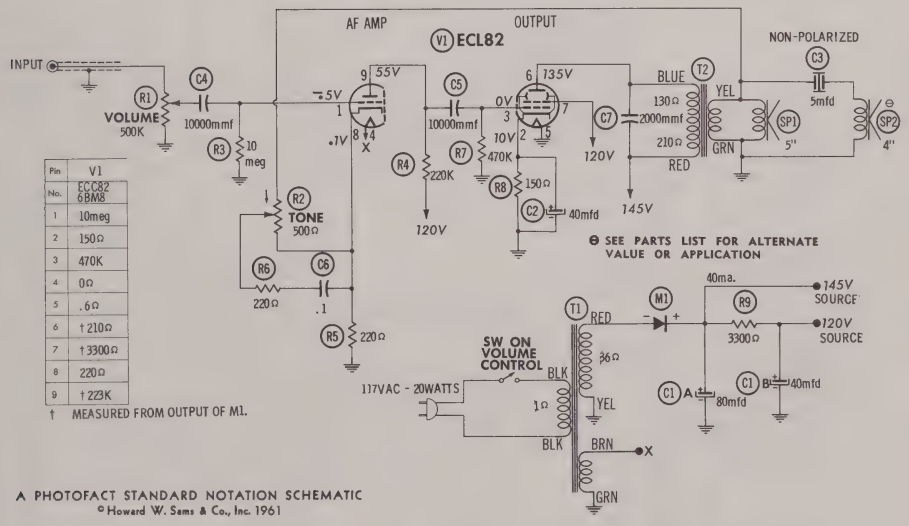
TELECTRO MODELS
AS-1975, SP-601



# MODEL SP-601

| | |
|---|---|
| TRADE NAME | Telectro Models AS-1975, SP-601 |
| MANUFACTURER | Telectrosonic Corp., 35-18 37th Street, Long Island City 1, N. Y. |
| TYPE SET | AC Operated One Tube Audio Amplifier |
| POWER SUPPLY | 110 – 120 Volts AC, 60 Cycles RATING 20 Watts, .25 Amp. @ 117 Volts AC |

TELECTRO MODELS
AS-1975, SP-601




| Pin No. | V1 ECC82 6BM8 |
|---|---|
| 1 | 10meg |
| 2 | 150Ω |
| 3 | 470K |
| 4 | 0Ω |
| 5 | .6Ω |
| 6 | †210Ω |
| 7 | †3300Ω |
| 8 | 220Ω |
| 9 | †223K |

† MEASURED FROM OUTPUT OF M1.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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KX338R

DATE 6-61 SET 536 FOLDER 14

SET 536 FOLDER 14

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆ | | | | | |
|---|---|---|---|---|---|
| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
| V1 | AF Amp. -Output | ECL82/6BM8 | | | |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | Telectrosonic PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | |
| C1A | 80 | 150 | TC-2014 | PRS2230 | BBRD8415 | TCD4975 | TDLD-11 | TVA-2461 | |
| B | 40 | 150 | | | | | | | |
| C2 | 40 | 10 | TC-1996 | PTT-10040 | NLW40-10 | TT15X40 | MLV40-12 | TE-1119 | |
| C3 | 5 | 12NP | TC-2000 | PRS7405 | BBR4-150 | TCN105 | | TVANS-1150 * | |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C4 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C5 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C6 | .1 200V | | P288N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C7 | 2000 | | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | Telectrosonic PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | |
| R1A | 500K | ½ | TC-1965 | B-60-S | A47-500K-Z | Q13-133 | U48 | Volume |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| C | Switch | | | Not Req. | SWE-12 | 76-1 | US-26 | Power Off-On |
| R2A | 5000Ω | ½ | TC-1964 | B-11 | A47-5000-S | Q13-114 | U12 | Tone |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |

## RESISTORS

**All wattages 1/2 watt, or less, unless otherwise listed.**

| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R3 | 10meg | | | | R7 | 470K | | | |
| R4 | 220K | | | | R8 | 150Ω | | | |
| R5 | 220Ω | | | | R9 | 3300Ω | | | |
| R6 | 220Ω | | | | | | | | |

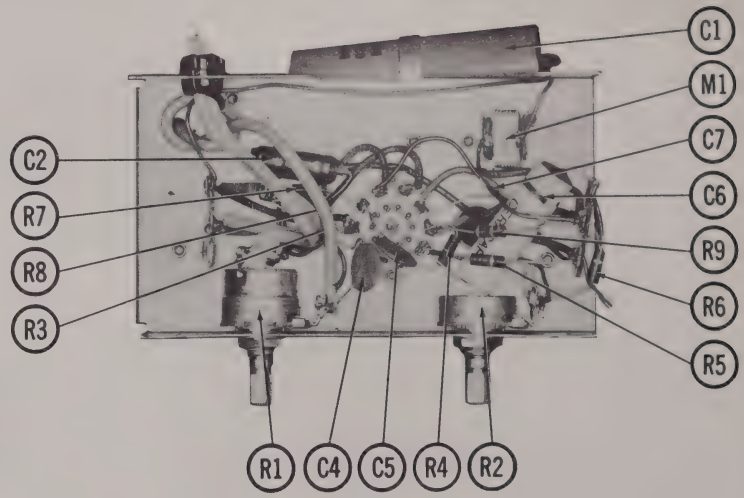
## TRANSFORMER (POWER)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | Telectrosonic PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 117V Ⓐ .25A | 130V Ⓐ .040A DC | 6.3V Ⓐ .78A | TT-785 | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | Telectrosonic PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 3400Ω | 3-4Ω | TT-786 | A-3018① | A-3877 | 26S50① | S-30X | ① Drill New Mounting Hole (s). |

# CHASSIS—BOTTOM VIEW




## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | Telectrosonic PART No. | QUAM PART No. | |
| SP1 | 5" | PM | 3-4Ω | TS-1926 | 5A1 | * Alternate Part #TS-1927 |
| SP2 | 4" | PM | 6-8Ω | TS-1927A * | 4A07Z6 | |

## POWER RECTIFIERS

| ITEM No. | RATING | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | CURRENT (Measured) | Telectrosonic PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | |
| M1 | .040A | TR-1921 * | 1N1763 † | 65 * | SR200 † | * Selenium<br>† Silicon |

## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | TK-267-1 | Volume |
| Knob | TK-268-1 | Tone |

## WIRING DATA

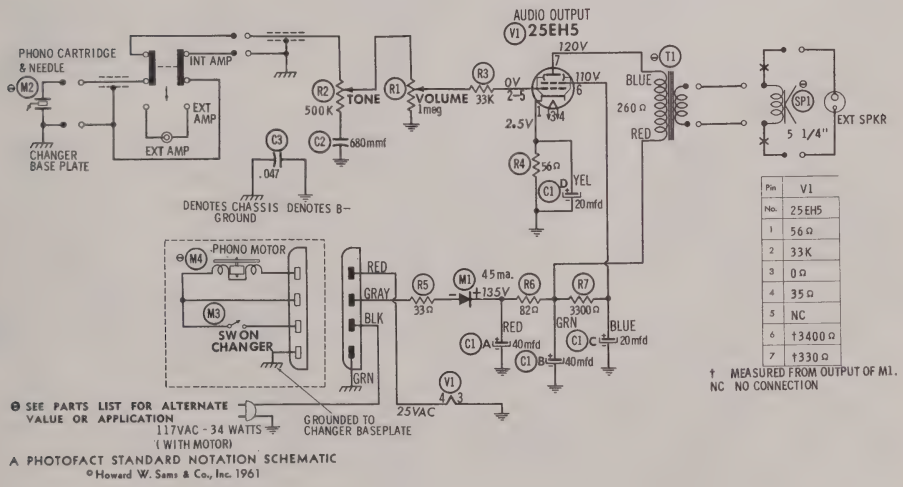
| | | |
|---|---|---|
| General-use Unshielded Hook-up Wire | Use BELDEN No. | 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord | Use BELDEN No. | 1765-B (6 Ft. Length)<br>1725-K (7½ Ft. Length) |

PHOTOFACT® Folder

MODEL 206

| | |
|---|---|
| TRADE NAME | V-M Models 205, 206, 306 |
| MANUFACTURER | V-M Corp., 375 W. Main Street, Benton Harbor, Michigan |
| TYPE SET | AC Operated One Tube Phono Amplifier |
| POWER SUPPLY | 110 — 120 Volts AC, 60 Cycles RATING 34 Watts, .32 Amp. @117 Volts AC |

MODELS 205, 206 ARE 4 SPEED MANUAL RECORD PLAYERS
MODEL 306 IS A 4 SPEED AUTOMATIC RECORD CHANGER. FOR SERVICE INFORMATION — SEE V-M 1201 — PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12




A PHOTOFACT STANDARD NOTATION SCHEMATIC

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V-M MODELS
205, 206, 306

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE (◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆) |
|---|---|---|
| V1 | Output | 25EH5 |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | V-M PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | 40 | 150 | 12022 | PR4-200 | BBRQ-44315C | WQ230 | CDBQ-4422 | TVA-4750 | |
| B | 40 | 150 | | | | | | | |
| C | 20 | 150 | | | | | | | |
| D | 20 | 25 | | | | | | | |

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | REMARKS | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C2 | 680 | | BPD-00068 | DD-681 | BYA10T68 | CCD-681 | B-368 | 10TS-T68 |
| C3 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | V-M PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 1meg | ½ | 12447 | B-69 | A47-1meg-S | Q11-137 | U54 | Volume |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |
| R2A | 500K | ½ | 12415 | B-60 | A47-500K-Z | Q13-133 | U48 | Tone |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R3 | 33K | | | |
| R4 | 56Ω | | | |
| R5 | 33Ω | | | |

| ITEM No. | RATING | IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R6 | 82Ω | | | |
| R7 | 3300Ω | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE PRI. | IMPEDANCE SEC. | V-M PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T1 | 3300Ω | 3-4Ω | 12667-3① | A-3025 | A-3332 | 24S53 | S-16X | ① Alternate Part #12667 |

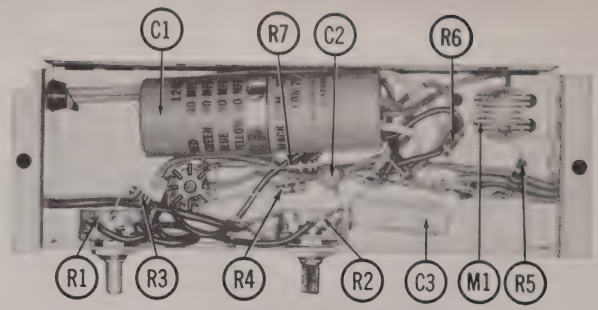
## SPEAKER

| ITEM No. | TYPE SIZE | TYPE FIELD | TYPE V. C. IMP. | V-M PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 5 1/4" | PM | 3-4Ω | 24101-3 | 52A1 | Model 206 |
| | 5 1/4" | PM | 3-4Ω | 23917 | | Model 306 |
| | 4" | PM | 3-4Ω | 21648 | | Model 205 |

## POWER RECTIFIERS

| ITEM No. | RATING CURRENT (Measured) | V-M PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| M1 | .045A | 12639 * | 1N1763 ◆ | 65 * | SR200 ◆ | * Selenium ◆ Silicon |

# CHASSIS—BOTTOM VIEW




## PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

| ITEM No. | V-M PART No. CARTRIDGE | V-M PART No. NEEDLE* | ASTATIC PART No. CARTRIDGE | ASTATIC PART No. NEEDLE* | ELECTRO-VOICE PART No. CARTRIDGE | ELECTRO-VOICE PART No. NEEDLE* | SONOTONE PART No. CARTRIDGE | SONOTONE PART No. NEEDLE* | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| M2 | 15258-B | 15335 * (LP) | 120TS | N8-1 * | 46T | Not Req. | 12TH-S | Not Req. | Models 206, 306 |
| | | 15336 * (78 RPM) | | N8-3 * | | | T-8C1-12TH-S † | | † Includes tone arm. |
| | 24232 | 21987 * (LP) | | | | | | | Model 205 |
| | | 21988 * (78 RPM) | | | | | | | |

## MISCELLANEOUS

| ITEM No. | PART NAME | V-M PART No. | NOTES |
|---|---|---|---|
| M3 | Switch | 9890 | Power Off-On (Model 206) |
| | Switch | 21338 | Power Off-On (Model 306) |
| M4 | Motor Ass'y. | 21598 | Complete, Includes Motor #14512 (Models 206, 306) |
| | Motor Ass'y. | 24049-A | Complete (Model 205) |
| | Idler Wheel | 7435 | Walsco Part No. 1453 (Models 206, 306) |

## CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | 23695-A | Volume |
| Cabinet | 23696-L | Model 206 |
| Cabinet | 23694-R | Red, Model 205 |
| Cabinet | 23694-L | Blue, Model 205 |
| Cabinet | 23698-L | Blue, Model 306 |
| Cabinet | 23698-R | Red, Model 306 |
| Handle | 24245 | |

## WIRING DATA

| | |
|---|---|
| General-use Unshielded Hook-up Wire | Use BELDEN No. 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord | Use BELDEN No. 1765-B (6 Ft. Length)<br>1725-K (7½ Ft. Length) |
| Low-Loss Shielded Lead (Interconnecting) | Use BELDEN No. 8401 |
| Phono Pick-up Arm Cable | Use BELDEN No. 8430 (Two Conductor - Twisted) |

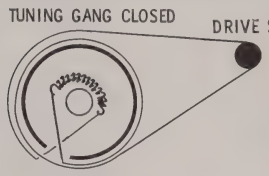
PHOTOFACT® Folder with CIRCUITRACE®

# WESTINGHOUSE MODELS H-732P7, H-733P7, H-733P7GT (Ch. V-2403-1)

WESTINGHOUSE MODELS H-732P7, H-733P7, H-733P7GT (Ch. V-2403-1)

MODEL H-733P7

## TUNING DRIVE CORD STRINGING




FRONT VIEW

WESTINGHOUSE MODELS H-732P7, H-733P7, H-733P7GT (Ch. V-2403-1)

| | |
|---|---|
| TRADE NAME | Westinghouse Models H-732P7, H-732P7GP, H-733P7, H-733P7GT (Ch. V-2403-1) |
| MANUFACTURER | Westinghouse Electric Corp., Radio-TV Div., Metuchen, N. J. |
| TYPE SET | Battery Operated Transistorized Portable AM Receiver |
| POWER SUPPLY | 3 Volts DC |
| RATING | 15MA @ 3 Volts DC (No Signal, Min. Volume) |
| TUNING RANGE—BROADCAST | 540-1600KC |
| | 25MA @ 3 Volts DC (Signal, Normal Volume) |

## ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3, ..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A4, A5. ..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A6. ..... GENERAL CEMENT #9440

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | Loop | 455KC (400% Mod.) | Tuning gang fully open. | Across voice coil. | A1, A2, A3 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |
| 2. | " | 1625KC | " | " | A4 | " |
| 3. | " | 1400KC | 1400KC | " | A5 | " |
| 4. | " | 600KC | 600KC | " | A6 | Adjust for maximum output. Repeat Steps 2, 3, and 4. |

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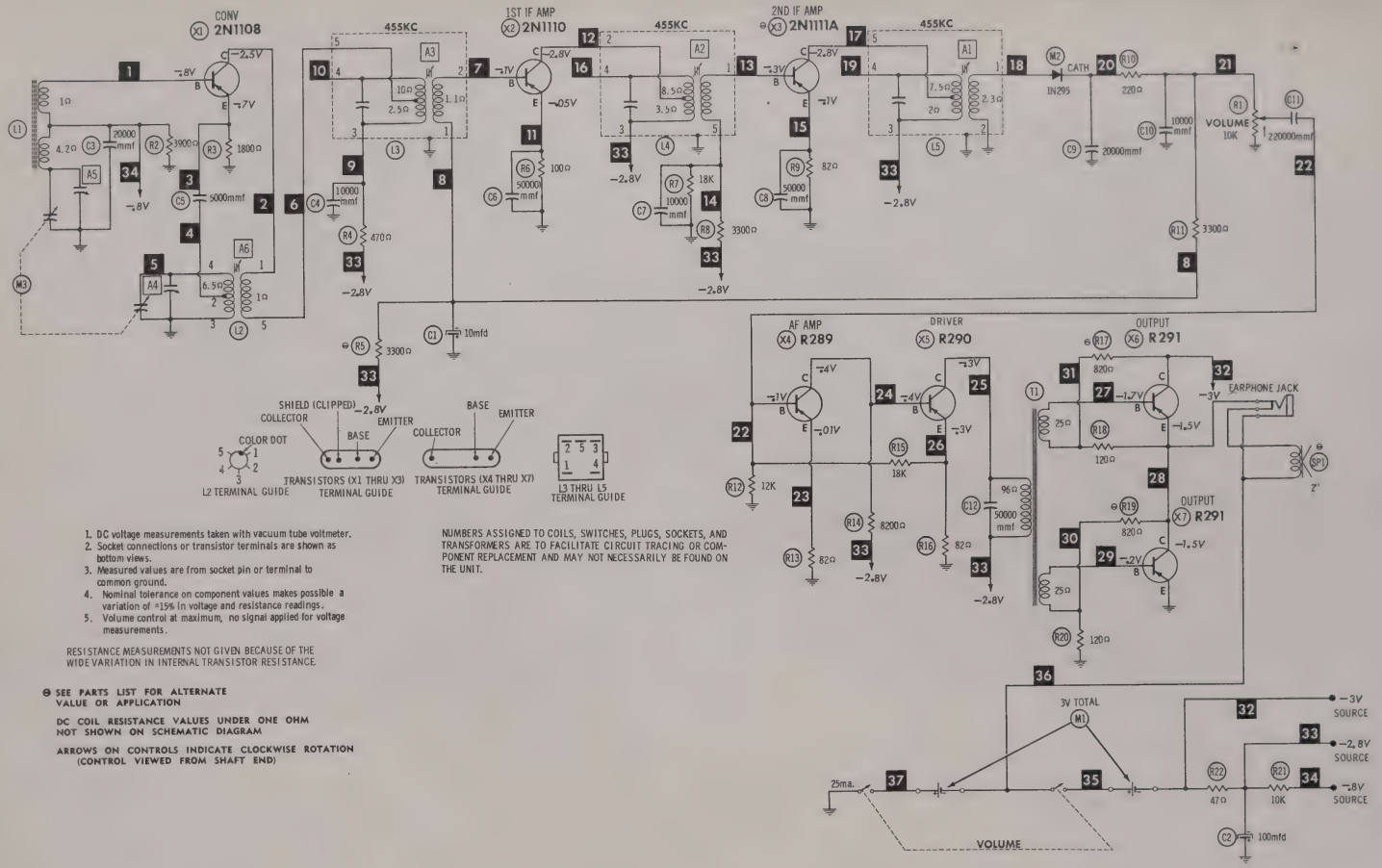
SET 536 FOLDER 16




1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE

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**WESTINGHOUSE MODELS H-732P7, H-733P7, H-733P7GT (Ch. V-2403-1)**

# PARTS LIST AND DESCRIPTIONS

## TRANSISTORS

| ITEM No. | ORIG. TYPE | USE | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|---|---|
| | | | RCA PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| X1 | 2N1108 | Converter | | 2N486 | 2N412 | PNP |
| X2 | 2N1110 | 1st IF Amplifier | | 2N483 | 2N409 | PNP |
| X3 | 2N1111A * | 2nd IF Amplifier | | 2N483 | 2N409 | PNP |
| X4 | R289 | AF Amplifier | | | | PNP |
| X5 | R290 | Driver | | | | PNP |
| X6 | R291 | Output | | | | PNP |
| X7 | R291 | Output | | | | PNP |

* Late Production use type 488 for higher gain.

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | Westinghouse PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | |
| C1 | 10 | 2 | 218V012H24 | XPP-3010 | NLW10-3 | TT3X10 | ML10-3 | TE-1053 | |
| C2 | 100 | 3.5 | 218V012H23 | PTT6100 | NLW100-6 | TT6X100 | ML100-6 | TE-1102 | |

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C3 | 20000 50V | | C80V203AM | DA-203 | H-05S2 | | TA-120 | TG-S20 |
| C4 | 10000 100V | | C80V103AM | DM-103 | H-05S1 | | TA-110 | TG-S10 |
| C5 | 5000 50V | | C80V502AM | DM-502 | H-05D5 | CCD-502 | TA-250 | TG-D50 |
| C6 | 50000 10V | | C80V503AM | DDA-503 | | | | TG-S50 |
| C7 | 10000 100V | | C80V103AM | DM-103 | H-05S1 | | TA-110 | TG-S10 |
| C8 | 50000 10V | | C80V503AM | DDA-503 | | | | TG-S50 |
| C9 | 20000 50V | | C80V203AM | DA-203 | H-05S2 | | TA-120 | TG-S20 |
| C10 | 10000 50V | | C80V103AM | DM-103 | H-05S1 | | TA-110 | TG-S10 |
| C11 | 220000 3V | #215V309H07 | | UK-224 | | | | |
| C12 | 50000 10V | | C80V503AM | DDA-503 | | | | TG-S50 |

# Westinghouse Part Number.

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | Westinghouse PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | |
| R1 | 10K | 1/4 | 270V090H01 | | | | | Volume & Switch |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA | | REMARKS |
|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | |
| R2 | 3900Ω | | | Note 1 |
| R3 | 1800Ω | | | |
| R4 | 470Ω | | | |
| R5 | 3300Ω | | | |
| R6 | 100Ω | | | |
| R7 | 18K | | | |
| R8 | 3300Ω | | | |
| R9 | 82Ω | | | |
| R10 | 220Ω | | | |
| R11 | 3300Ω | | | |
| R12 | 12K | | | |

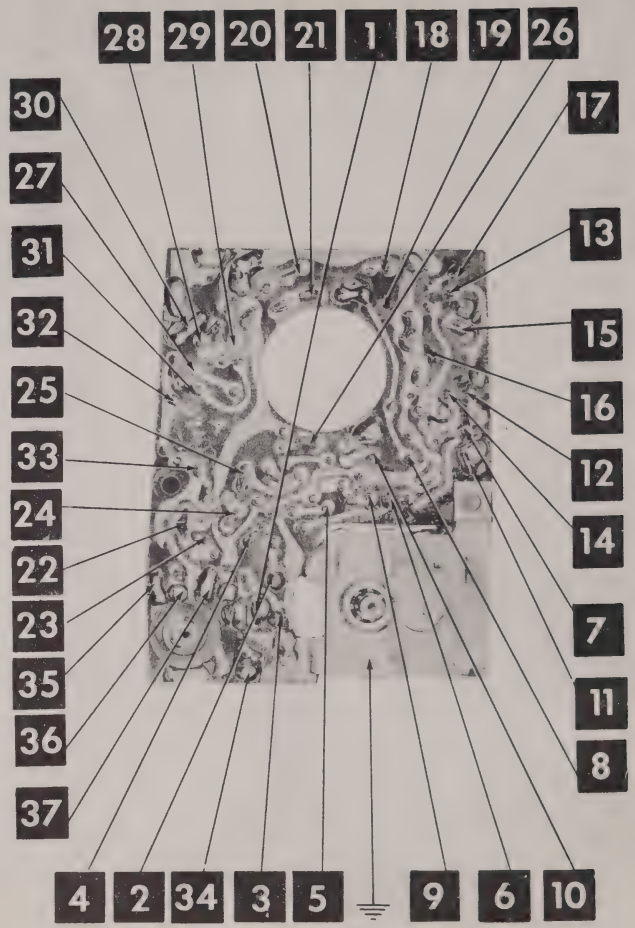
| ITEM No. | RATING | REPLACEMENT DATA | | REMARKS |
|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | |
| R13 | 82Ω | | | |
| R14 | 8200Ω | | | |
| R15 | 18K | | | |
| R16 | 82Ω | | | |
| R17 | 820Ω | | | Note 2 |
| R18 | 120Ω | | | |
| R19 | 820Ω | | | Note 2 |
| R20 | 120Ω | | | |
| R21 | 10K | | | |
| R22 | 47Ω | | | |

Note 1. Late production versions use 39K. Some versions may use 68K. Replace with 39K to increase stabilization.

Note 2. Use 750Ω when output transistors are replaced.

# PRINTED BOARD

A Howard W. Sams CIRCUITRACE® Photo



# PARTS LIST AND DESCRIPTIONS (Continued)

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | Westinghouse PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | |
| L1 | Loopstick | 310V058H01 | | | | |
| L2 | Osc. | 230V090H01 | | | | |
| L3 | 1st IF | 235V066H01 | | | | |
| L4 | 2nd IF | 235V066H02 | | | | |
| L5 | 3rd IF | 235V066H03 | | | | |

## TRANSFORMER (DRIVER)

| ITEM No. | TURNS RATIO | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | Westinghouse PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 2 | 1<br>SEC. 2<br>2 | 430V096H01 | | | | | |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | Westinghouse PART No. | QUAM PART No. | |
| SP1 | 2" | PM | 6-8Ω | 570V080H02 * | | * Late Production |
| | 2" | PM | 14-16Ω | 570V080H01 ‡ | | ‡ Early Production |

## BATTERIES

| ITEM No. | VOLTAGE | Westinghouse PART No. | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | | | BURGESS | | EVEREADY | | MALLORY | | |
| | | | "A" | "B" | "A" | "B" | "A" | "B" | |
| M1 | 1.5V | | | 930 * | | 1015 * | | M15R * | * 2 Required |

## SIGNAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | Westinghouse PART No. | GENERAL ELECTRIC PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| M2 | 1N295 | 296V002H01 | | 1N295 | 1N295 | Detector (Pigtail) |

## MISCELLANEOUS

| ITEM No. | PART NAME | Westinghouse PART No. | NOTES |
|---|---|---|---|
| M3 | Tuning Cap. | 330V035H01 | 2 Gang |

## CABINETS & CABINET PARTS

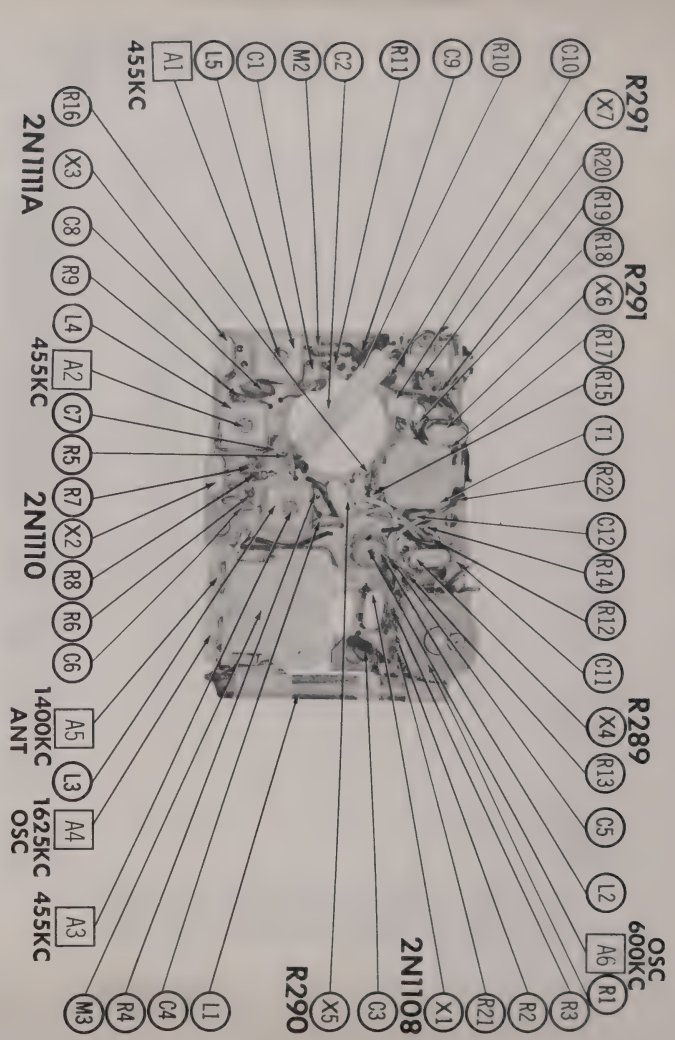
**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

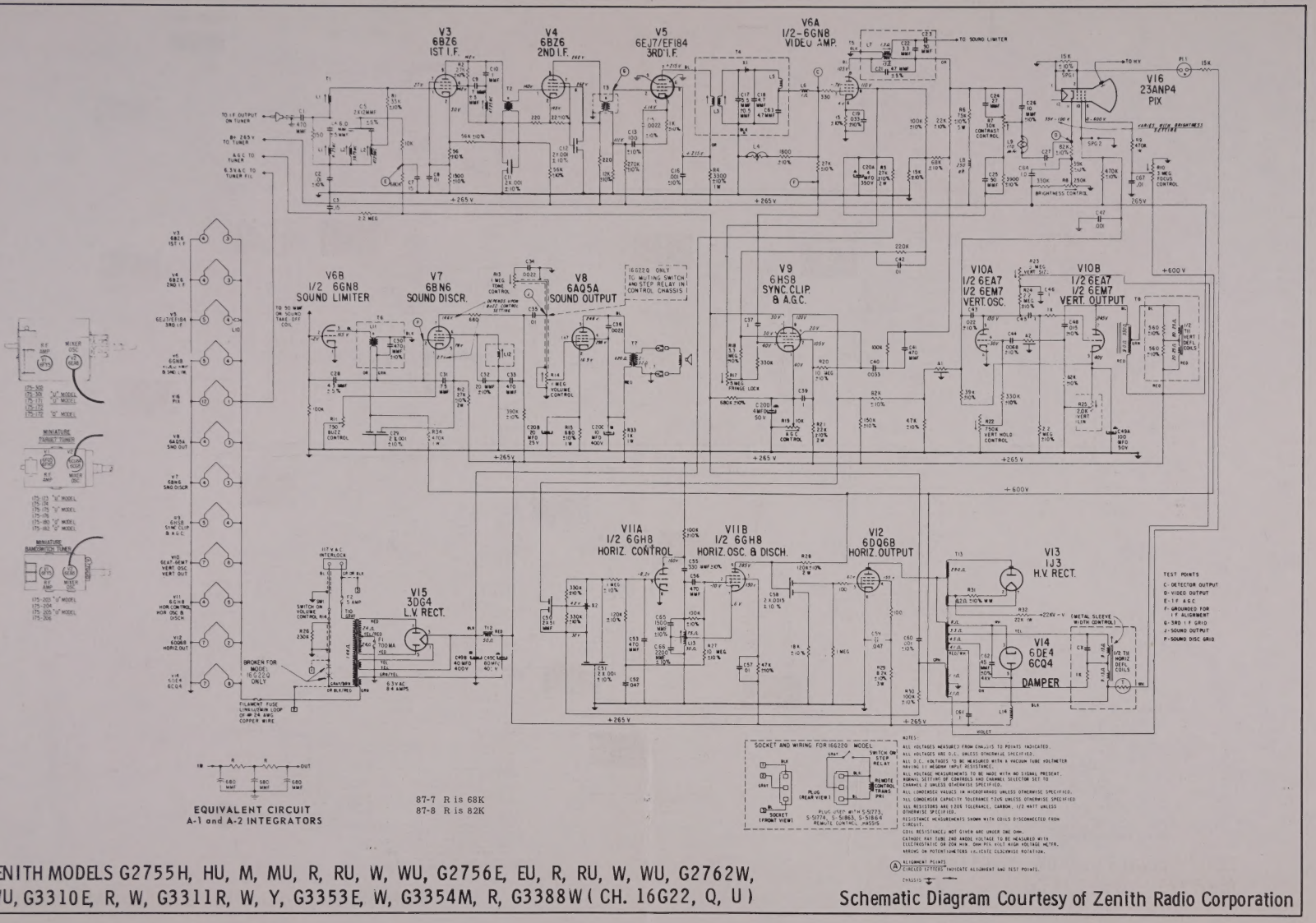
| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Glass | 787V256H01 | Dial Window |
| Dial | 558V305H01 | Numbered Plate |
| Knob | 550V147H01 | Tuning |
| Knob | 550V148H01 | Volume |
| Cabinet | 513V072H01 | Back, Model H-732P7, H-732P7GP |
| Cabinet | 513V072H02 | Back, Model H-733P7, H-733P7GP |
| Cabinet | 513V062H01 | Front, Model H-732P7, H-732P7GP |
| Cabinet | 513V062H02 | Front, Model H-733P7, H-733P7GP |
| Case | 513V065H01 | Carrying |

## WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

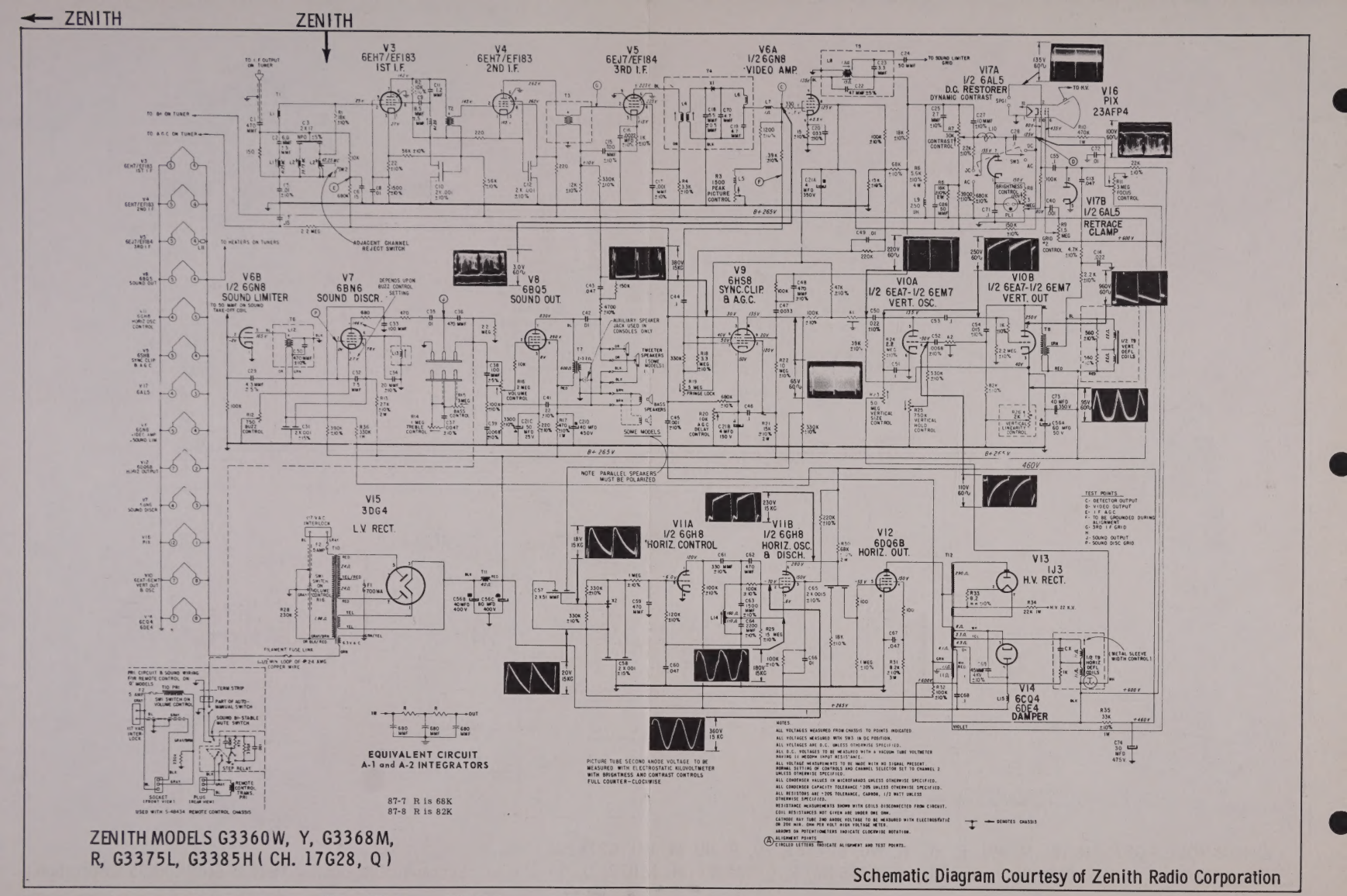
## CHASSIS—TOP VIEW




V3 6BZ6 1ST I.F.
V4 6BZ6 2ND I.F.
V5 6EJ7/EF184 3RD I.F.
V6A 1/2-6GN8 VIDEO AMP.
V16 23ANP4 PIX
V6B 1/2 6GN8 SOUND LIMITER
V7 6BN6 SOUND DISCR.
V8 6AQ5A SOUND OUTPUT
V9 6HS8 SYNC.CLIP. & A.G.C.
V10A 1/2 6EA7 1/2 6EM7 VERT.OSC.
V10B 1/2 6EA7 1/2 6EM7 VERT. OUTPUT
V11A 1/2 6GH8 HORIZ. CONTROL
V11B 1/2 6GH8 HORIZ.OSC. & DISCH.
V12 6DQ6B HORIZ.OUTPUT
V13 1J3 H.V. RECT.
V14 6DE4 6CQ4 DAMPER
V15 3DG4 L.V. RECT.
+265 V
+600 V
TO SOUND LIMITER
TO H.V.
TO IF OUTPUT ON TUNER
B+ 265 V TO TUNER
A.G.C. TO TUNER
6.3 V A.C. TO TUNER FIL.
TO 50 MMF ON SOUND TAKE-OFF COIL
BROKEN FOR MODEL 16G22Q ONLY
FILAMENT FUSE LINK (ULTRAMIN LOOP OF #0.24 AWG COPPER WIRE
TEST POINTS
C- DETECTOR OUTPUT
D- VIDEO OUTPUT
E- I.F. A.G.C.
F- GROUNDED FOR I.F. ALIGNMENT
G- 3RD I.F. GRID
J- SOUND OUTPUT
P- SOUND DISC GRID
SOCKET AND WIRING FOR 16G22Q MODEL
PLUG (REAR VIEW)
SOCKET (FRONT VIEW)
SWITCH ON STEP RELAY
REMOTE CONTROL TRANS PRI
EQUIVALENT CIRCUIT A-1 and A-2 INTEGRATORS
87-7 R is 68K
87-8 R is 82K
NOTES:
ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED.
ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
ALL D.C. VOLTAGES TO BE MEASURED WITH A VACUUM TUBE VOLTMETER HAVING 11 MEGOHM INPUT RESISTANCE.
ALL VOLTAGE MEASUREMENTS TO BE MADE WITH NO SIGNAL PRESENT, NORMAL SETTING OF CONTROLS AND CHANNEL SELECTOR SET TO CHANNEL 2 UNLESS OTHERWISE SPECIFIED.
ALL CAPACITANCE VALUES IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
ALL CONDENSER CAPACITY TOLERANCE 20% UNLESS OTHERWISE SPECIFIED
ALL RESISTORS ARE 10% TOLERANCE, CARBON, 1/2 WATT UNLESS OTHERWISE SPECIFIED.
RESISTANCE MEASUREMENTS SHOWN WITH COILS DISCONNECTED FROM CIRCUIT.
COIL RESISTANCES NOT GIVEN ARE UNDER ONE OHM.
CATHODE RAY TUBE 2ND ANODE VOLTAGE TO BE MEASURED WITH ELECTROSTATIC OR 20K MIN. OHM PER VOLT HIGH VOLTAGE METER, WIRING ON POTENTIOMETERS INDICATE CLOCKWISE ROTATION.
ALIGNMENT POINTS
CIRCLED LETTERS INDICATE ALIGNMENT AND TEST POINTS.
CHASSIS

ZENITH MODELS G2755H, HU, M, MU, R, RU, W, WU, G2756E, EU, R, RU, W, WU, G2762W, WU, G3310E, R, W, G3311R, W, Y, G3353E, W, G3354M, R, G3388W ( CH. 16G22, Q, U )

Schematic Diagram Courtesy of Zenith Radio Corporation


← ZENITH
ZENITH
V3 6EH7/EF183 1ST I.F.
V4 6EH7/EF183 2ND I.F.
V5 6EJ7/EF184 3RD I.F.
V6A 1/2 6GN8 VIDEO AMP.
V17A 1/2 6AL5 D.C. RESTORER DYNAMIC CONTRAST
V16 PIX 23AFP4
V17B 1/2 6AL5 RETRACE CLAMP
V6B 1/2 6GN8 SOUND LIMITER
V7 6BN6 SOUND DISCR.
V8 6BQ5 SOUND OUT
V9 6HS8 SYNC.CLIP. & A.G.C.
V10A 1/2 6EA7-1/2 6EM7 VERT. OSC.
V10B 1/2 6EA7-1/2 6EM7 VERT. OUT
V15 3DG4 L.V. RECT.
V11A 1/2 6GH8 HORIZ. CONTROL
V11B 1/2 6GH8 HORIZ. OSC. & DISCH.
V12 6DQ6B HORIZ. OUT.
V13 1J3 H.V. RECT.
V14 6CQ4 6DE4 DAMPER
ADJACENT CHANNEL REJECT SWITCH
VOLUME CONTROL
BASS CONTROL
TREBLE CONTROL
BUZZ CONTROL
AUXILIARY SPEAKER JACK USED IN CONSOLES ONLY
TWEETER SPEAKERS (SOME MODELS)
BASS SPEAKERS
SOME MODELS
NOTE PARALLEL SPEAKERS MUST BE POLARIZED
CONTRAST CONTROL
BRIGHTNESS CONTROL
PEAK PICTURE CONTROL
FRINGE LOCK
A.G.C. DELAY CONTROL
VERTICAL SIZE CONTROL
VERTICAL HOLD CONTROL
VERTICAL LINEARITY CONTROL
HORIZ. FREQ. CONTROL
METAL SLEEVE WIDTH CONTROL
RETRACE CONTROL
FOCUS CONTROL
TEST POINTS
C- DETECTOR OUTPUT
D- VIDEO OUTPUT
E- I.F. A.G.C.
F- TO BE GROUNDED DURING ALIGNMENT
G- 39Ω I.F. GRID
H-
J- SOUND OUTPUT
P- SOUND DISC GRID
EQUIVALENT CIRCUIT A-1 and A-2 INTEGRATORS
87-7 R is 68K
87-8 R is 82K
PICTURE TUBE SECOND ANODE VOLTAGE TO BE MEASURED WITH ELECTROSTATIC KILOVOLTMETER WITH BRIGHTNESS AND CONTRAST CONTROLS FULL COUNTER-CLOCKWISE
NOTES:
ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED.
ALL VOLTAGES MEASURED WITH SW3 IN DC POSITION.
ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
ALL D.C. VOLTAGES TO BE MEASURED WITH A VACUUM TUBE VOLTMETER HAVING 11 MEGOHM INPUT RESISTANCE.
ALL VOLTAGE MEASUREMENTS TO BE MADE WITH NO SIGNAL PRESENT NORMAL SETTING OF CONTROLS AND CHANNEL SELECTOR SET TO CHANNEL 2 UNLESS OTHERWISE SPECIFIED.
ALL CAPACITOR VALUES IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
ALL CONDENSER CAPACITY TOLERANCE ±20% UNLESS OTHERWISE SPECIFIED.
ALL RESISTORS ARE ±20% TOLERANCE, CARBON, 1/2 WATT UNLESS OTHERWISE SPECIFIED.
RESISTANCE MEASUREMENTS SHOWN WITH COILS DISCONNECTED FROM CIRCUIT.
COIL RESISTANCES NOT GIVEN ARE UNDER ONE OHM.
CATHODE RAY TUBE 2ND ANODE VOLTAGE TO BE MEASURED WITH ELECTROSTATIC OR 20K MIN. OHM PER VOLT HIGH VOLTAGE METER.
ARROWS ON POTENTIOMETERS INDICATE CLOCKWISE ROTATION.
ALIGNMENT POINTS
CIRCLED LETTERS INDICATE ALIGNMENT AND TEST POINTS.
DENOTES CHASSIS
B+265V
460V
USED WITH S-48434 REMOTE CONTROL CHASSIS

ZENITH MODELS G3360W, Y, G3368M, R, G3375L, G3385H (CH. 17G28, Q)

Schematic Diagram Courtesy of Zenith Radio Corporation

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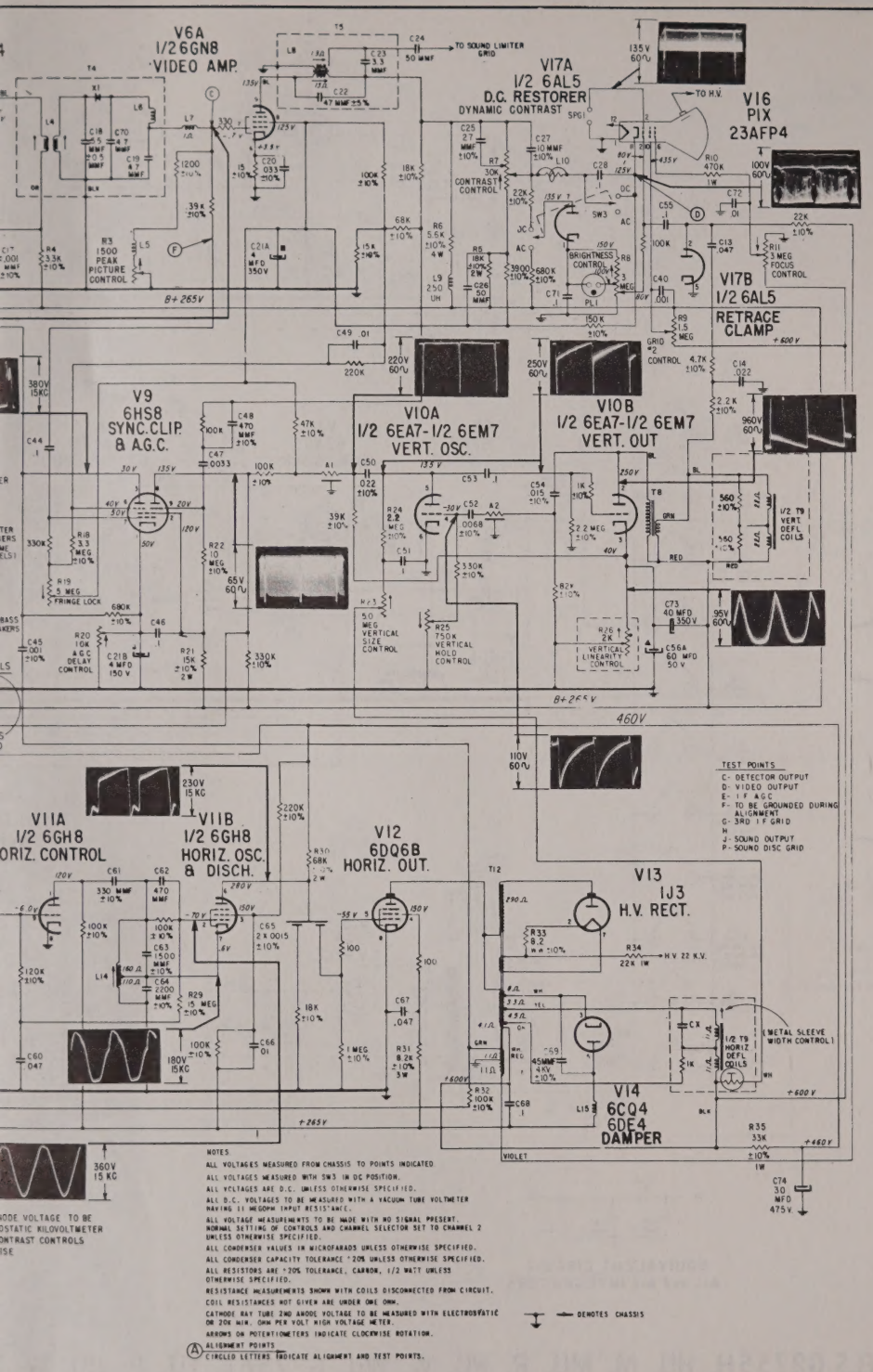


Schematic Diagram Courtesy of Zenith Radio Corporation